

Very Important Game People in the History of Computer and Video Games

Master of Art Thesis by Petri Mikael Kuittinen

petri.kuittinen@gmail.com

Media Lab / Medialaboratorio

University of Art and Design Helsinki / Taideteollinen Korkeakoulu

An Abstract

Of the Thesis of Petri Mikael Kuittinen for the degree of Master of Arts in University of Art and Design Helsinki

Title: Very Important Game People in the History of Computer and Video Games

Keywords: history, computer games, video games, electronic games, biography

Abstract:

This thesis covers the history of 30 very important game people (in alphabetical order): David Arneson, Ralph Baer, Daniel Buntin, Nolan Bushnell, John Carmack, Chris Crawford, Richard Garriott, Gary Gygax, Trip Hawkins, Rob Hubbard, Toru Iwatani, Eugene Jarvis, Ken Kutaragi, Ed Logg, Sid Meier, Jeff Minter, Shigeru Miyamoto, Peter Molyneux, Yuji Naka, Alexey Pajitnov, John Romero, Hironobu Sakaguchi, Chris Stamper, Tim Stamper, Yu Suzuki, Satoshi Tajiri, Ken Williams, Roberta Williams, Will Wright and Gunpei Yokoi.

It includes their background, their most important games and game-related work. It also provides information about the companies they worked for and the people they worked with. The thesis was created by gathering information from large number of sources, including books, internet, magazines, games and contacting some of the actual people.

The thesis also contains a timeline of the most important events in the history of computer and video games and a chapter on the precursors of videogames, namely money game machines and pinball.

The thesis is illustrated with several hundred pictures.

Table of Contents

Title Page	1
Abstract.....	2
Table of Contents	3
Introduction.....	12
Target Audience	13
Markup.....	13
References.....	14
Stating Facts as They Are, Despite Contradicting Information	14
Opinions.....	14
Pictures	14
Sources of Information	14
Main Web Sources.....	15
www.wikipedia.org	15
www.allgame.com	15
www.mobygames.com.....	15
http://www.emuunlim.com/doteaters/	15
http://www.hut.fi/~eye/videogames/	15
Phoenix - The Fall & Rise of Videogames	16
High Score - The Illustrated History of Electronic Games.....	16
The Ultimate History of Video Games	16
Game Design - Theory & Practise.....	17
Videogames: In the Beginning.....	17
Game Over - Press Start to Continue.....	17
Power UP - How Japanese Video Games Gave the World an Extra Life	17
Smartbomb	18
On Game Design	18
Joystick Nation.....	18
Hackers	18
Game.Machines - The Encyclopedia of Consoles, Handhelds and Home Computers 1972-2005.....	19
Masters of Doom	19
Other Web Sources	19
Games and Game Collections themselves as source of Information	20
Contacting the Actual Person.....	20
Acknowledgements	20
Foreword	21
References (not found in other chapters):	21
Precursors of Video Games	22
Gambling Machines.....	22
Slot Machines	22
Bajazzo.....	23
Pachinko.....	23
Electronic Gambling Games	23
Pictures from top to bottom: Liberty Bell, mechanical poker game, German Bajazzo from 1905, Black Bajazzo ("sininen ihme" – “the blue wonder”, a strange Finnish name as the machine is black) from 1920s, Jokeripokeri, a Pachinko game, a Finnish video poker game designed and manufactured by RAY.....	24
History of Pinball	24

Table of Contents

Introduction	24
The Beginning	24
Baffle Ball	25
Ballyhoo	25
Advance	25
Contact	25
Bumper	26
Humpty Dumpty	26
Triple Action	26
Modern Pinball Development	26
Addams Family	26
The Decline	27
Links	27
Timeline of the Most Important Events in the History of Computer and Video Games	29
1947-1969 - The Early Years	29
1970s - The Birth of Arcade and Home Video games	29
1980s - The Rise of Nintendo and Home Computers	30
The 1990s - Battle of Sega, Nintendo and Sony PlayStation	31
<i>Pictures: (left) Nokia Snake appered in 1997, the world's first game for a mobile phone, (middle) Soul Calibur, the best-selling game for Sega Dreamcast.....</i>	31
2000- 2006	32
Very Important Game People	33
References	33
Ralph Baer (1922-present) – the Father of Videogame	34
Early Idea of Having Interactive Games on a TV Screen	34
The Video Game is Born	34
Simon	35
Other Inventions	36
References	36
Nolan Bushnell (1943-present) - the Father of the Video Game Industry	37
Early Years and Education	37
Computer Space	37
Birth of Atari	38
Pong	38
Early Years at Atari	39
Chuck E. Cheese	39
New Rule at Atari	40
Man of Many Companies	41
Nolan's Theorem	41
Killer Application of the Multimedia Industry	41
Comeback of Classics	41
References	42
Ed Logg – designer and programmer of Asteroids, Centipede and Gauntlet	43
Early Games	43
Asteroids - The Most Successful American Arcade Game	43
Centipede - Co-designed by a Woman?	44
Millipede - and Games That Never Saw the Daylight	44
Gauntlet - 4-player Multiplayer Action Role-Playing Game	45
Tengen-Version of Tetris	45

Table of Contents

Logg and the Future of Arcade Gaming	46
References	46
Eugene Jarvis (1955-) – Game Designer and Programmer of Defender and Robotron: 2084.....	47
Atari Didn't Hire Him	47
Defender - First Side-Scrolling Shooter Game with Off-Screen Actions	47
Designers Get Ripped Off.....	48
Robotron: 2084 and Dual-Joystick Controls.....	48
Later Games by Jarvis.....	48
References.....	48
Gary Gygax (1938-) – Co-Creator of Dungeons & Dragons.....	50
Early Years of Miniature War Gaming.....	50
Chainmail	50
Dungeons & Dragons	51
Birth of TSR.....	51
Greyhawk	51
D&D Rule Sets.....	52
Advanced Dungeons & Dragons	52
Golden Years of TSR.....	52
Troubles Arise at TSR	52
Lorraine Williams Takes Control.....	53
Wizards of the Coast.....	53
More Gygax's Creations.....	53
Advanced Dungeons & Dragons 2 nd Edition	54
New Era with Dungeons & Dragons 3rd Edition and Open Gaming License.....	54
Personal Life	54
References.....	55
Dave Arneson (1947-) – Co-Creator of Dungeons & Dragons	56
Role-playing Using Miniatures and Rules.....	56
Arneson's Collaboration with Gygax.....	56
Dungeon Crawls	57
Dungeons & Dragons	57
Blackmoor Campaign	57
Legal Cases against TSR	57
Back to Working for TSR	58
Adventure games.....	58
4D Interactive Systems and Arneson as a Game Programmer	58
Current Life as an Educator	58
References.....	59
Richard Garriot (1961-) – Creator of Ultima	60
Early Years and Akalabeth	60
Akalabeth	60
Ultima	60
Ultima II.....	61
Origin Systems and Ultima III	61
Ultima IV	61
Autoduel.....	62
Ultima V.....	62
Ultima: Martian Dreams	62
Ultima VII.....	62

Table of Contents

Ultima VIII.....	62
Ultima IX and Ultima Online.....	63
Other Games by Origin Systems	64
<i>Screenshot from Wing Commader IV</i>	64
Destination Games.....	64
Eccentric Multi-Millionaire	65
References.....	65
Ken Williams (1954-) and Roberta Williams (1953-) - Founders of Sierra On-Line and Creators of Graphics Adventure Game.....	66
Early Years and Romance.....	66
Birth of On-Line Systems and Mystery House	67
Wizard and the Princess.....	68
InterAction Magazine	69
Summer Camp and Jawbreaker.....	70
More Early Adventures.....	72
<i>Screenshots from Ulysses and the Golden Fleece (left) and Time Zone (right)</i> ..	72
King's Quest	72
<i>Screenshots from King's Quest I to VII</i>	73
<i>Screenshots from King's Quest I to VII</i>	74
<i>Screenshots from Space Quest, Police Quest and Leisure Suit Larry (bottom row)</i>	74
Cover Photos	75
Phantasmagoria	75
Current Life.....	76
Ken Williams on Game Design.....	76
Ken's Quest for the Perfect Game	77
Bill Gates' Advice to Ken Williams	77
Lack of Women in the Game Industry	78
References.....	78
John Carmack (1970-) – Co-Founder of iD Software, programmer of Wolfenstein, Doom and Quake.....	80
Early Years.....	80
Softdisk and Commander Keen.....	81
Forming of id Software.....	81
Wolfenstein 3D.....	82
Doom - the Game that Defined First-Person-Shooters.....	82
Dawn of Deathmatch	83
Doom Level Editors.....	83
<i>Screenshot from Quake 3 Arena (id Software)</i>	84
Quake - Client-Server-Based Multiplayer Shooter	84
Technical Genius.....	84
Advocate of Open-Source.....	85
References.....	85
John Romero (1967-) – designer of Wolfenstein 3D, Doom and Quake	86
Early Years.....	86
Birth of id Software	86
Wolfenstein 3D.....	87
Doom	87
Heretic and Hexen	87
Quake	88

Table of Contents

Ion Storm - The Story of an Enormous Waste of Money	88
The Daikatana Story	88
New Directions	89
Romances	90
References	91
Dan Bunten / Danielle Bunten Berry (1949-1998) – Early Pioneer of Multi-Player Games	92
Childhood and Early Games	92
M.U.L.E. - Multiple Use Labor Elements	92
Seven Cities of Gold and Modem Wars	93
The Case of Two Board Games	93
Transformation into Female and Last Years of Life	93
Good Multi-player Design Elements	93
References	95
Chris Crawford (1950-) - game designer, programmer and author of books on game design, founder of the Game Developer's Conference and Journal of Computer Game Design	96
Early Years, Atari and War Games and Simulations	96
Eastern Front 1941	96
The Art of Computer Game Design	96
Gossip - Early Attempt at Simulating Human Interactions	97
Balance of Power - Or How to Prevent the Nuclear Holocaust	97
Siboot - and Inverse Parsers	97
Later Games	98
Game Developer's Conference	98
Dream about Interactive Story-Telling	99
Crawford's Thesis on Game Design	100
Crawford on Bad Ideas	100
References	101
Sid Meier (1954-) – game programmer and designer of Civilization, Railroad Tycoon and Pirates!	102
Early Years of MicroProse	102
Pirates!	102
Railroad Tycoon	103
Sid Meier's Civilization	103
Firaxis	104
Gettysburg	104
Games Are About Meaningful Choices to Reach a Goal	104
Meier on Game Design	105
Give Choices to Players, Instead of Forcing a Story Upon Him	105
References	106
Will Wright (1960-) - Designer of Sim City and the Sims	107
Early Years and Love-life	107
Raid on Bungeling Bay	107
Building Cities	107
SimCity Finally Hits the Shelves of the Shops	108
SimEarth and SimAnt	109
Nobody Wants a Doll House Life Simulator	109
The Sims	110
Asperger-alike Personality	113

Table of Contents

References.....	113
Trip Hawkins (1953-) – Founder of Electronic Arts, 3D0 and Digital Chocolate.....	114
Early Years.....	114
Birth of Electronic Arts.....	114
First Ten Years of Electronic Arts.....	115
3D0	116
Digital Chocolate and Sumea.....	117
Fame	118
Social Experience Means More than Technical Fidelity	118
References.....	119
Toru Iwatani (1955-) – Designer of Pac-Man.....	120
Early Years.....	120
Pac-Man	120
Career after Pac-Man.....	121
The Qualities of Good Game Designer According to Iwatani.....	121
References.....	121
Shigeru Miyamoto (1952-) – Designer of Mario, Donkey Kong, Zelda and Many Others.....	123
Childhood.....	123
Education	123
The Birth of Donkey Kong	123
Zelda, Super Mario Bros and other Games.....	124
<i>Screenshots from Legend of Zelda, Mario Kart 64 and Super Smash Bros.</i>	124
Perfectionist.....	124
Personal Life	124
Design for Character's Appearance First	124
Miyamoto's Dislike towards Role-Playing Games.....	125
Miyamoto's Current Role as Producer.....	126
Game Development Process inside Nintendo	126
References.....	127
Satoshi Tajiri (1965-) – Designer of Pokémon	128
Obsessed Child.....	128
Game Freak	128
Pokémon	128
Tajiri's Relations with Miyamoto	129
References.....	129
Gunpei Yokoi (1941-1997) - Inventor of Nintendo Game & Watch and Game Boy	131
Early Years and a Little Bit of the History of Nintendo.....	131
Nintendo Game & Watch.....	131
Head of R&D1.....	132
Nintendo Game Boy	132
Virtual Boy.....	133
Fatal Accident	133
References.....	133
Yu Suzuki (1958-) – Designer of Outrun, Virtua Fighter and Shenmue.....	135
Early Years.....	135
Towards Visual realism	135
Virtua Fighter	135

Table of Contents

<i>Screenshots from top left to bottom right: Virtua Fighter, Virtua Fighter 4, Virtua Fighter 2, VF 4</i>	136
Shenmue - The Most Ambitious Video Game Project	136
<i>Screenshot: At arcade in Shenmue, Ryuo teaching little girl how to take care of an orphan kitten, (below) art from Shenmue.</i>	137
Suzuki's New Directions	137
Suzuki's View to Game Design	137
References	138
Yuji Naka (1965-) – creator of Sonic the Hedgehog	139
Without Formal University Education	139
Head of Sega AM8 Studio	139
Birth of Sonic	139
Naka's Personality	139
References	141
Hironobu Sakaguchi (1962-) – Designer of Final Fantasy	142
Early Years	142
Final Fantasy I	143
Final Fantasy II and III	143
Final Fantasy IV	144
Final Fantasy V & VI and Promotions	144
Chrono Trigger	144
<i>Screenshots from Chrono Trigger (left) and Chrono Cross (right)</i>	145
Final Fantasy VII	145
Parasite Eve	146
Final Fantasy VIII	146
Chocobo Racing	147
Vagrant Story	147
<i>Screenshot from Final Fantasy 9 (on top of page screen shot of Vagrant Story)</i>	147
Final Fantasy IX	147
Final Fantasy X	148
Making a Final Fantasy film: the Spirits Within	148
Final Fantasy X-2	149
Massively Multiplayer Final Fantasy XI	149
Success of Final Fantasy	150
More a Story-Teller than a Game Designer	150
References	150
Ken Kutaragi (1950-) – Father of PlayStation	152
Brilliant Engineer	152
Secret Chip for Nintendo	152
Birth of PlayStation	153
PlayStation 2	153
PlayStation Portable	154
Kutaragi Loses Power Struggle at Sony	154
Kutaragi's Critic	154
References	155
Alexey Pajitnov (1956-) – Creator of Tetris	157
Childhood and Education	157
Fascination for Pentaminoes Leads to Tetris	157
Pavlovsky and Gerasimov	158

Table of Contents

Robert Stein and Hungarian Tetris	158
Commercial PC Version of Tetris	159
Battle for the Rights.....	159
Henk Rogers and Bulletproof Software.....	160
Three Men Travel to Moscow	160
Bulletproof Software and Nintendo Make a Deal	161
Legal Battle in Court	161
Enormous Success	162
Pajitnov Didn't Become Rich	162
Tetris Sequels	163
<i>Pictures: (above) Welltris and (right) Faces</i>	<i>163</i>
Intec and El-Fish.....	163
Breakthru!	163
<i>Pictures: Knight Moves (left) and Slices puzzle from Pandora's Box (right)....</i>	<i>164</i>
Knight Moves	164
Pandora's Box	164
Tragedy for Pokhilko.....	164
Hexic HD	164
<i>Screenshots from MobyGames</i>	<i>164</i>
References	164
Peter Molyneux (1960-) – Creator of Populous, Theme Park, Dungeon Keeper,	
Black & White and Fable.....	166
Bullfrog Productions.....	166
Populous I & II and Powermonger	166
Syndicate.....	166
Theme Park	167
<i>Pictures: Theme Park (left) and Magic Carpet (right).....</i>	<i>167</i>
Magic Carpet.....	167
Hi-Octane	167
Dungeon Keeper.....	168
Lionhead Studios	168
Black & White.....	168
Hyping the Fable	169
The Movies.....	169
<i>Screenshots from MobyGames</i>	<i>170</i>
References	170
Jeff Minter (1962-) - One-Man Software Development Team Called Llamasoft	
(1982-)	172
Early Years.....	172
<i>Pictures: Gridrunner and Revenge of the Mutant Camels</i>	<i>172</i>
Birth of Llamasoft	172
Llmatron	173
More Arcade Remakes: Tempest 2000 and Defender 2000	174
<i>Pictures: Tetris 2000 and Defender 2000.....</i>	<i>174</i>
Virtual Light Synthesizers	174
<i>Screenshot from Neon lightsynth.....</i>	<i>175</i>
References	175
Rob Hubbard (1956-) – the Most Famous Computer Game Musician	177
Musician and Self-Taught Programmer.....	177
SID - The Sound Chip of Commodore C64.....	177

Table of Contents

The Golden Years of Hubbard 1985-1987.....	177
Hubbard Borrowed Compositions.....	178
Making of Commando.....	179
Hubbard's Working Style.....	179
Years at Electronics Arts.....	180
Hubbard's Music Lives On.....	180
<i>Screenshots from Little Sound Demo and Little Color Demo by The Exceptions</i> <i>(1987) featuring Atari ST conversions of Hubbard's music.</i>	181
References.....	181
Chris Stamper (1959-) and Tim Stamper (1962-) – Founders of Ultimate Play the Game and Rare and makers of many famous Spectrum games.....	183
Early Years.....	183
Jetpac	183
More Hit Games	184
Early Isometric 3D.....	185
Nintendo Entertainment System.....	185
Birth of Rare.....	185
Razz - A Failed Arcade Experiment.....	186
Graphics Too Good to Believe That They Are True	186
Nintendo 64 Games	187
GoldenEye 007	187
Other N64 Games	187
<i>Screenshots from Conker's bad Fur Day</i>	188
Decline of Rare.....	188
References.....	188
Summary and My Observations.....	190
Half Have University Education	190
Programmer-Designer.....	190
Males Dominate	190
American and Japanese Dominance	191
Winning Game Designs	192
Recognizable Characters.....	192
Idea vs. Visuals.....	192
Making Sequels	192
Working Style	193
Personality of a Game Developer.....	193
Asperger Syndrome Alike Personalities	193
References.....	193
Conclusions.....	195
Biographies	195
Factual Correctness	195
Usefulness as a Reference.....	195
Missing Parts.....	196
Future Plans.....	196
Glossary	198
References.....	202
Appendix A: Summary Table of Very Important Game People.....	203
Appendix B: Summary Table of Home Video Consoles	205
Appendix C: Summary Table of Handheld Game Machines	208
Appendix D: Summary Table of Home Computers.....	210

Introduction

My main motivation to begin writing this thesis was that there is no comprehensive history of electronic games, which would cover both computer and video games, including non-commercial games. Also the existing game histories have mostly concentrated on people, companies, technologies and the game industry, mentioning very little or nothing about the actual games. I attempt to fill that gap and also make a history of electronic games, which would also consider game design wisdom.

I am very picky when it comes to playing, but I really love playing some games. So certainly the passion towards the subject is also an important motivation. Since early childhood I have been interested in designing games. I think every good game designer, book writer, composer or movie maker will benefit from knowing the history of his/her media and studying existing masterpieces. In fact I have included game history as a compulsory subject in the game design courses, which I have taught in various places.

The subject matter is extremely extensive. I remember once reading that every year over a thousand commercial PC games are launched worldwide. This number doesn't include locally published games, freeware and open source games or video games. It is safe to assume that every year at least 10000 new games are released. No single person can review or know about them all.

The emphasis of my work is on those games, game machines and companies, which have created the biggest revenue or are otherwise historically important e.g. introduced some new idea or concept. In year 2003 video games earned about 10 times as much money as PC games. This fact is also represented in this selection of the subjects of this thesis. It contains more material about video games than PC games. But I have not forgotten non-commercial games, especially if they have introduced new concepts to the world of gaming.

My original idea was to have a thesis, which would have a chronological history of games, a chapter on the important game people, a chapter on the history of all important game genres, a chapter on important game companies as well as game machines. This proved to be a much larger project than I originally could have imagined.

I had also been making a new classification and genre division system of games. Finally in January 2006 after 6 years of work and analyzing existing game classification systems I managed to make my own system, which feels "right". My classification system contains a 29-dimensional topology, where there are 3 possible choices in each dimension. The multi-dimensional system can also be thought as a sort of mega genre classification. The actual genre division is a binary tree. The advantage of the binary tree is that one gets the correct game genre after replying to a series of yes/no questions (selecting either the left or right branch in the tree). I came to the conclusion that there is only 8 game genres, because many products, which are sold as games are actually competitions, puzzles or toys. My work on this matter is still unfinished and someday I want to propose a doctoral thesis on the matter. Despite the fact that I had already written quite a lot of text for it, I decided to leave the game

classification and genre division out of my thesis. It was natural also to leave out the history of important game genres as these two chapters go hand in hand.

The main part of my current thesis is the history of important game people. Instead of just telling the biography of these people, I have told about game-related things surrounding them. The history of many important games, game machines and game companies are incorporated into the biographies of the person in question.

The very important game people chapter contains lots of quotations from interviews, speeches and writings of these people. I wanted to include them in my thesis, because I believe they contain the most important lessons in game design. I believe that by reading these words of wisdom, one will learn more about game design and business than reading any single existing book on the subject. They also make the text more interesting to read.

The important game people chapter is preceded by a short chapter on the precursors of video games, mainly pinball and money game machines. There is also a time line of game history from 1947 to 2006, highlighting the most important milestones. This should give a reader a good overall view of the subject.

Target Audience

The main audience of this thesis is expected to be game enthusiasts and people interested in the corresponding person or game history. I have tried to make the text readable for as large an audience as possible. I have avoided abbreviations and special terms. The thesis includes a glossary, which should be consulted if the reader is not familiar with some of the terms or abbreviations. I assume the reader has basic computer user skills and knowledge, so I am not going to explain what a mouse or a processor or a programming language is. I also assume the reader has played some games, but s/he doesn't need to know much specific information related to a certain game genre or machine.

Markup

The names of games, important companies and devices are written in bold type the first time they are mentioned. I have indicated the developer, the publisher of the game and the year of its first publication in parentheses. Many games have been published for numerous platforms and they might have been published originally in Japan or USA and one or two years later in other parts of the world. In these cases I have put the first publication year, unless otherwise noted. E.g. **Pokémon: Gold Version** (Game Freak/Nintendo 2000). From there we know that a game named Pokémon: Gold Version was developed by a company named Game Freak and published by Nintendo in year 2000. If the developer and publisher are the same company, then only one of them is listed e.g. **Asteroids** (Atari 1979). I wish other writers of game-related texts would adopt the same markup. It makes finding information about games easier. E.g. if one types "asteroids", or any other common English language word, into a web search engine like Google, the first hits are not about the game. But if one uses "asteroids Atari 1979" as search term, one is likely to find the original arcade game among the first hits.

References

Because there are so many references used in my thesis and I don't want a huge reference list, I have decided to put the references at the end of each article, so that a fellow researcher can find them easily. I haven't marked the source of all the facts in any sort of square brackets or similar, because I find this usually makes the text less readable.

All the text, which is written in *italics*, is direct quotation from one of the sources, and mentioned in the reference list of the article. In addition to the reference list, I have usually mentioned the source directly above the quoted text. Sometimes it is obvious that the quoted text continues from the same source interview or source and in these cases I have omitted the mention in order to make the text shorter.

Stating Facts as They Are, Despite Contradicting Information

I have always tried to verify the information, years, numerical facts, who really made the game etc. from several sources, unless I am otherwise certain that the information is correct.

However I do not want to litter the already long text with countless references to all these sources I used to verify the facts. During the making of this thesis I have often encountered contradicting information from different sources. If one source claims fact A and there are two or more reliable sources claiming B, I utilize B in the thesis and, in most cases, there is not even a mention of source A, with its wrongful fact. I think it is better to just briefly state the facts, than to undermine the trust of the reader, by doubting every piece of information.

Opinions

Some people think a final thesis should not contain any opinions at all. I strongly disagree. I have included some of my own opinions here. My own opinions have always been written in the 1st person e.g. *I think...* or the sentence is written in such way that it is obvious that it is opinion e.g. *in my opinion*. Text written in the 3rd person is indicative as stating of the facts.

Pictures

One picture is worth a thousand words. The history of games would be a boring read without photos and pictures of the games, people and machines. In many cases I have copied these pictures from the Internet without getting the permission from the copyright owner. The sources of the images are mentioned at the end of the article in *italics*. I hope I can retain the pictures in the thesis according to the current regulations concerning copyright and academic theses in Finland, but if the original copyright owner wants them to be removed, I will do so.

Sources of Information

Here is a list of my main sources of information and my short evaluation of their usefulness related to game history. I have not listed all the books or web sites, which I used as sources of information, just the most important ones. The sources are in approximate order of importance.

Main Web Sources

www.wikipedia.org

Wikipedia is the largest encyclopedia in the world, maintained by private individuals all over the world. Its English language version contains well over 1 million entries and it is growing at a very fast rate. The Wikipedia articles cover most of the important game people, machines, games and companies. They are cross-linked and contain lots of information.

The information on Wikipedia articles seems to be accurate, which is not surprising as Wikipedia articles often mention the use of the same textual sources, which I also recommend here and wrong information is probably quickly corrected by one of the readers. Many of the biographical facts on the important game people are almost directly borrowed from Wikipedia. I have, of course, verified the information from another source, if I could find such. But sometimes Wikipedia is the only source mentioning the date of birth of a particular person, for example.

www.allgame.com

All Game Guide is one of the all Media Guides. It has information on both old and new video games, arcade games, computer the games and also game machines, companies and people. It also has thousands of game reviews. Most of them are quite thorough and contain the basic information about the game. The database is very large and the information seems to be mostly accurate. There are some minor mistakes like, for example, Nintendo Game Boy is said to have 6502 CPU running at 2.14 MHz, even though it has Sharp custom-made Z80 processor running at 4.2 MHz. Their entry on Game Boy further confuses the reader by saying that 6502 and Z80 are similar. I am familiar with the assembly language and architecture of both these processors. They are both 8-bit processors with 16-bit memory space, but other than that they are totally different.

www.mobygames.com

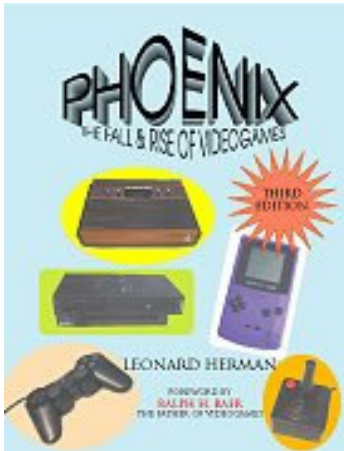
MobyGames is a game documentation and review project produced by volunteers. The information is nicely cross-linked and the search engine works well. The database is unfortunately less comprehensive than the All Game Guide, especially concerning older games.

<http://www.emuunlim.com/doteaters/>

The Dot Eaters website is an excellent history of computer and video games written by William Hunter. The text is full of interesting small details, but the original sources of the information are not mentioned and sometimes it is difficult to evaluate the accuracy of the information. The web site's navigation system, which uses drop-down menus, is cumbersome. The history ends around the mid 1990s.

<http://www.hut.fi/~eye/videogames/>

The author's own web document, which resides in the above mentioned address, is still cited by many people in their texts. Some of the facts in the page are a bit inaccurate. I used www.videotopia.com and a series of articles about game history published in Printti magazine (13/87-18/87) by Jari Hennilä and Tuomo Sajaniemi as my main sources of information.



Phoenix - The Fall & Rise of Videogames

Leonard Herman's **Phoenix** is widely considered to be the most comprehensive and historically most accurate book on the video game industry. The book's 3rd edition begins with a short history of computers and early games. Then it progresses in chronological order from the 1970s to the year 2000. The book's weakness is that it is clearly not written, nor edited, by a professional writer. It doesn't cover computer games at all, nor mobile games. The book is very American-centered, failing to mention things which happened outside the US. It sadly also lacks consistency and many important facts e.g. what was the introductory price of certain game machines (sometimes mentioned, sometimes not).

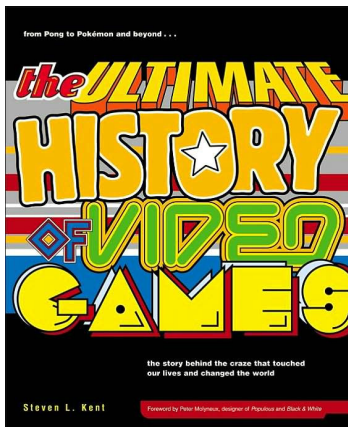
High Score - The Illustrated History of Electronic Games

Rusel DeMaria's and Johnny Wilson's **High Score** covers the history of all major game companies and history of both computer and video games. The book also contains appendixes about electronic games in UK and a chronological history of Japanese games. The book would be a really superb over-all source of information on the subject, but even the latest 2nd edition strangely lacks some very important things e.g. it doesn't mention Pokémon at all.



The Ultimate History of Video Games

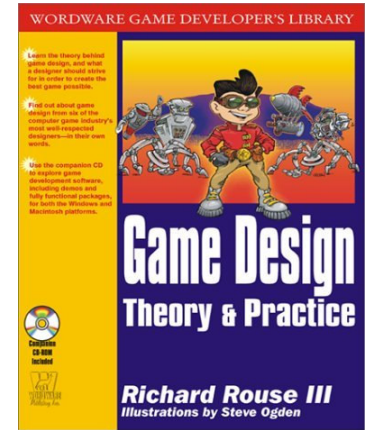
Steven L. Kent's **Ultimate History of Video Games** is a well written, excellent book on the subject. The book begins with a timeline from the year 1889 up to 2001, and this is followed by a history of pinball and money games. The rest of the book progresses in fairly chronological order. The information seems to be very accurate and Kent has personally interviewed many of the numerous game people, trying to ascertain the truth about many things shrouded by legends. The most valuable part of the book is the small interview snippets, which tell the opinions and facts from the game people themselves. Unfortunately the book doesn't cover computer or non-commercial games at all.



Game Design - Theory & Practise

Richard Rouse III has made a book called **Game Design**. The book features very long (often longer than 20 pages) in-depth interviews of the following famous game designers:

Chris Crawford, Ed Logg, Jordan Mechner, Sid Meier, Steve Meretzky and Will Wright. Each interview contains a list of the games these people have made and discussion and insight and historical information about how they were developed, and why the designer chose to make certain decisions.

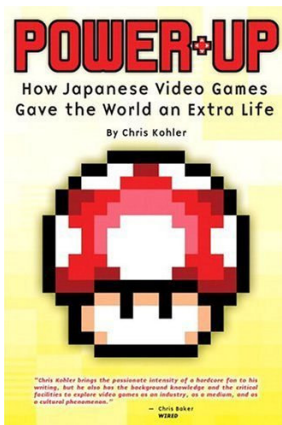
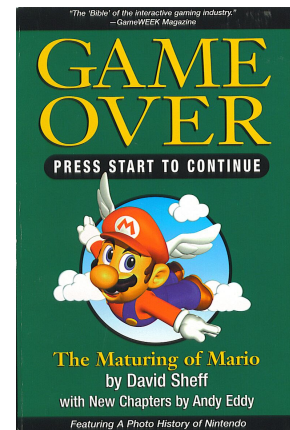


Videogames: In the Beginning

Videogames: In the Beginning is written by Ralph H. Baer, the inventor of home video games. The book meticulously documents the development of the world's first video game system, the prototypes and Magnavox Odyssey. It also has long lists and descriptions and even electronic layouts of many other Ralph H. Baer inventions. The book contains lots of scans of original paper documents, court evidence. The historical accuracy of this book appears to be extremely high. Ralph Baer's personal website also has lots of information.

Game Over - Press Start to Continue

David Sheff's **Game Over** is the history of Nintendo till year 1999. It has extensive chapters on the history of Tetris and the legal battle surrounding it. It covers the most important Nintendo people: Shigeru Miyamoto, Hiroshi Yamauchi, Gunpei Yokoi, Howard Lincoln and Minoru Arakawa (only Satoshi Tajiri is missing). It also covers aspects related to other important game companies, including Sega, Mattel and Eletronic Arts. Although the book is written in a journalistic, easy-to-read, magazine style, I find it fairly accurate. In personal email correspondence Trip Hawkins has disputed many of the facts related to him and Electronics Arts.



Power UP - How Japanese Video Games Gave the World an Extra Life

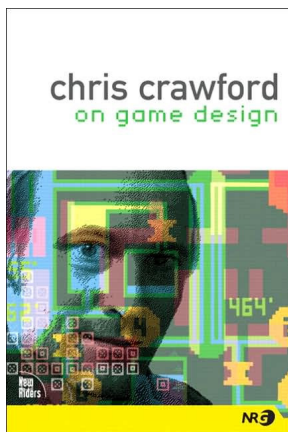
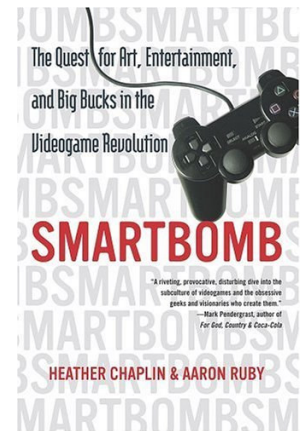
Chris Kohler's **Power UP** concentrates on Japanese video games and tries to explain how they have become popular all over the world. Kohler has lived in Japan and he has used a couple of Japanese sources. This makes the text even more valuable to the Western reader. Kohler makes no effort to hide that he is a huge fan of Shigeru Miyamoto and his games and Final Fantasy. He writes in detail about the story and game-play of these games, including the game endings. I find this an excellent feature, because personally I lack the skill, patience and interest to play these games to the end and now I can read how a true fan has explored and studied them thoroughly. The

Introduction

book also has information on Satoshi Tajiri and the creation of Pokémon, creation of Space Invaders, Pac-Man and an entire chapter on music games and game music.

Smartbomb

Smartbomb by Heather Chaplin and Aaron Ruby tells the story of a couple of important game people; Clifford "CliffyB" Bleszinki (developer of Unreal), Shigeru Miyamoto, John Romero, John Carmack, Will Wright, David Reber (a player), Seamus Blackley (Xbox) and Ed Fries (head of Microsoft Game Studios). The book, which seems well researched and also covers the most important persons of the early years: William Higinbotham, Steve Russel and Nolan Bushnell.

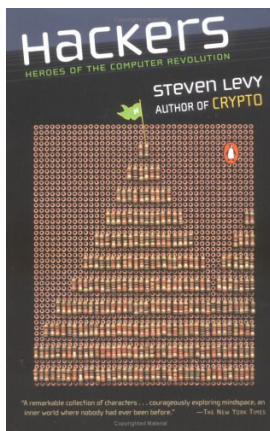
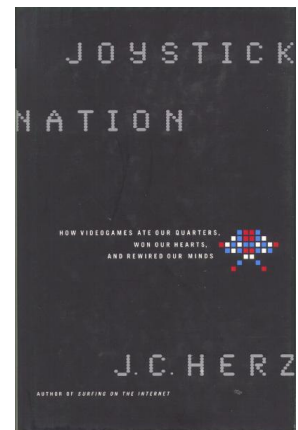


On Game Design

Chris Crawford's **On Game Design** is mostly about game design, but contains a brief list of non-electronic (tabletop & strategy) and electronic games in the "some milestone games" chapter. The book has very detailed information about all the games Crawford has made and how he made them, down to program code examples and design essays. It is clearly the source you want to use, if you want information about his games or his life. Crawford used to work for Atari, so there is plenty of information about Atari from that era.

Joystick Nation

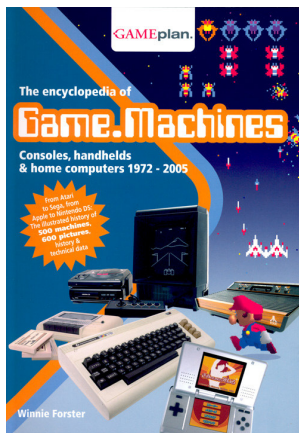
J. C. Herz's **Joystick Nation** is an entertaining book aimed for people, who are casual gamers. The book begins with a time line of video games history from the period 1962-1996. Unfortunately the facts are often slightly wrong e.g. many dates are wrong by ± 1 year. E.g. Atari VCS is listed as year 1978, even though it came to market in 1979. And Atari's home version of Pong is listed in 1974. It was invented and designed that year, but only came to market in 1975. Tetris is listed in 1989, even though it was made in 1985. A good thing about the book is that it actually has quite a lot of information on the games themselves e.g. Doom.



Hackers

Steven Levy's **Hacker** is about hacker culture, but it has a chapter about the birth of Space War and Steve Russel. It has many chapters of information about Ken and Roberta Williams, the early years of Sierra On-Line and their most famous worker, John Harris, a game programmer. The information on the subjects is very detailed, going down to personal life and hygiene. The facts seem to be most accurate, but sometimes intentionally inflated, in order to tell a more interesting story. John Harris especially has criticized Levy

for presenting an inaccurate picture of him. Unfortunately the book doesn't cover events after its publication date (1984). The new edition has a very short "Afterword: Ten years later" chapter.



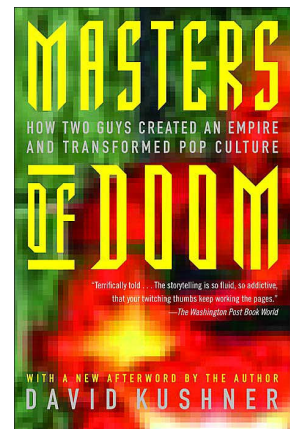
Game.Machines - The Encyclopedia of Consoles, Handhelds and Home Computers 1972-2005

Winnie Foster's **The Encyclopedia of Consoles, Handhelds and Home Computers** was originally published in German language. The English language edition, 2005, is greatly expanded. It covers almost all home video game machines, hand-held game machines and most home computers. It lists their year of first appearance, number of games published, how many units the device sold and its technical statistics, including processor, screen resolution, colors, audio, peripherals, memory and so on.

Unfortunately it often doesn't mention what was the introductory price of the machine or give information on the best selling games and their sales figures. The emphasis of the books is on the machines, not games, even though it contains lots of screen shots.

Masters of Doom

David Kushner's **Masters of Doom** is an entertaining story of John Carmack and John Romero. The book has excellent information about the private lives of these persons and the overall culture surrounding the games id Software has created. The book also has quite a lot of information about other people, who worked with them including: Michael Abrash, Kevin Cloud, Adrian Carmack, Stevie Case, Tom Hall, American McGee and Jay Wilbur. The book also provides information on id Software and Ion Storm.



Other Web Sources

I have used the search engines extensively. My main search engines have been www.google.com and a9.com, which both use the same database. Occasionally I have used search.yahoo.com, which can find some pages, which Google doesn't. Usenet is the largest net discussion group, featuring tens of thousands of news groups on every imaginable subject, including games. The Usenet archive by Google, groups.google.com, indexes over 1 billion Usenet articles. They contain lots of information about games, but it is very difficult to verify the accuracy of this information, so Usenet was not widely used as a source.

Sometimes information is found as pictures and not as text. Many web sites nowadays contain high quality scans of the original game cabinet, game box or instruction leaflet. The scans are so high resolution that one can read all the essential information, including the publisher, year and so on. One such website is <http://www.arcadeflyers.com>, which contains flyers and cabinet art relating to over 4000 arcade game machines.

Games and Game Collections themselves as source of Information

I personally own a very large collection of games and game machines. To make this thesis I have often looked at the game package, started up the game and at least checked its "credits" screen to verify the years and who actually made the game. Playing a lot of games and personally having lived during a large part of game history gives insight to writing about the subject. One can automatically dismiss certain facts as wrong, because one knows it from personal experience.

There are couple of classic game collections, published for PS2 and Xbox, which contain a wealth of historical information in addition to providing emulated versions of these classic games:

- Midway Arcade Treasures 1 (Digital Eclipse/Midway 2003)
- Midway Arcade Treasures 2 (Digital Eclipse/Midway 2004)
- Atari Anthology (Digital Eclipse/Atari 2004)

This is not a comprehensive list, there are more similar game collections, but these are the three which I own. They contain scanned versions of the original cabinet art, instruction manuals and short video interviews of important game people like Nolan Bushnell.

Contacting the Actual Person

I have personally met Jeff Minter in Assembly 2003 and showed him his biography text, which he approved with only one tiny change (one year was wrong). I also met Rob Hubbard in Assembly 2002 and talked with him for almost a day and interviewed him for Assembly TV.

I contacted the following persons via email and got replies from them: David Arneson, Christopher Crawford and Trip Hawkins. I also contacted several other people, but never got a reply from them.

Acknowledgements

I want to thank staff of the Media Lab of the University of Art and Design, especially Asta Raami for suggesting to me to make a graphical timeline to visualize my thesis and different ways to make it more readable for non-gamer persons.

I want to thank Heidi Tikka for her many pieces of advice on how to write the thesis and Dean of the Media Lab, Philip Dean, for pre-reading the text and helping me with English language.

I want to thank my current employer Häme Polytechnic (University of Applied Sciences) for them letting me skip couple of meetings to do my thesis.

I want to thank the following persons for providing essential information about themselves: David Arneson, Christopher Crawford and Trip Hawkins.

I want to thank my parents for coming to visit here almost every weekend and cook tasty food, while I have been working in front of my computer.

Introduction

And most importantly I want to thank my dear wife, who finally pushed me to do this thesis to the end and was alone while I was typing it in front of computer for numerous months and many nights.

Foreword

I have spent about 6 years writing this text and have really put effort into getting the facts right. I hope you have fun reading the text and, at the same time, I hope it could also function as a reference work to fuel game research, game design and help people, who write game related books, articles and game reviews.

Petri Kuittinen

19th March 2006 in Riihimäki, Finland

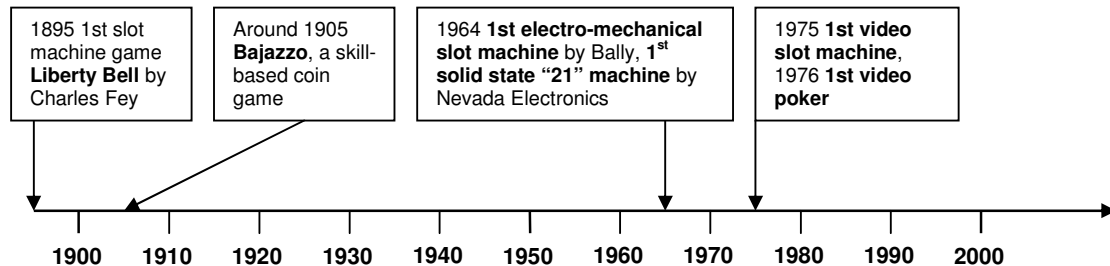
References (not found in other chapters):

- NPD Group: Video Game Sales Data for 2003
Accessed on 19th March 2003, available on:
http://retailindustry.about.com/od/seg_toys/a/bl_npd012703_2.htm
- Book cover pictures from:
<http://www.barnesandnoble.com/>
<http://www.amazon.com>
<http://www.rolentapress.com>

Precursors of Video Games

Before the first arcade video game machines were introduced there was already other coin-operated games. The first coin-operated games were simple money and gambling games, like fruit machines and pinball machines. The existing, well-established amusement machine industry helped the growth of arcade video games.

Gambling Machines



Slot Machines

Slot machines and video poker are the most common example of gambling machines or money game machines.

The classic slot machine is a coin-operated machine with three or more reels that rotate when a button is pressed or lever-like handle on the right side of the machine is pulled. The slot machine is also informally called a *one-armed bandit*, referring to the lever on the side of the machine and the fact and many people have lost lots of money with these machines.

Most slot machines have a currency detector, which validates inserted coins or money. They also pay their wins with money, but other kind of rewards are also possible. In UK English slot machines are called *fruit machines*. A couple of early slot machines awarded fruit flavoured chewing gums with the pictures of the symbols of the reels. The cherry and melon symbols, which have been popular symbols in slot machines, are derived from this. The BAR symbol is derived from an early logo of the Bell-Fruit Gum Company.



The first slot machine, **Liberty Bell**, was invented in 1895 by Charles Fey in San Francisco, California. Liberty Bell had pictures of the hearts, diamonds and spades and one cracked Liberty Bells on each of the three mechanical reels. The aim of the game was to get 3 similar symbols in a row. Three bells in a row gave the biggest payoff, which was ten nickels. Liberty Bell was very popular and it spawned a thriving mechanical device industry. Soon all sorts of different kind of gambling machines appeared: poker, black jack, roulette etc.

Bajazzo

One the peculiar early gambling machine was **Bajazzo**, or "Pajatso" in Finnish. The word comes from Italian word "pagliaccio" and means a joker. The game is played by inserting a coin into a slot and then shooting the same coin into the game area, where the player tries to make the coin fly through one of the gates, which rewards with money. The first Bajazzo were manufactured in Germany in the early 20th century and they were imported to Finland in the 1920s. The motivation for such machines was that gambling games were illegal in Germany and Bajazzo has no element of chance. It is a game of pure skill (even though it can be argued that the game machine is designed so that the trajectory of the coin is more or less random, making it almost impossible for even the most skilled player to earn lots of money). The Slot Machine Association of Finland, Raha-automaattiyhdistys (RAY), has been manufacturing and designing Bajazzo machines since 1938.



Pachinko

The Japanese game machine, Pachinko, can be described as mixture between a slot machine and a pinball game. The aim of the game is to shoot and aim balls and try to get them go through a maze of pins and finally travel through an open gate in the game area. That can trigger an additional slot machine game, which can make a bigger gate open. Getting balls through these gates earns the player with more balls, which can be exchanges into prices. The origins of the Pachinko game are unknown, but it mostly likely descended from "Coringth Game" from Chicago, USA. The first Pachinko machines appeared in Japan in 1920s. Originally the balls were shot with spring mechanism, but that was later replaced by electrically fired plunger, which shoots the balls into the playfield. The player can control of the initial velocity of the balls with a throttle. In 1980s they got computerized with flashing lights, sounds and video graphics, to make them more attractive. Pachinko machines are extremely popular in Japan and there are Pachinko halls, which feature nothing but lines of Pachinko machines.

Electronic Gambling Games

In 1964 Bally, a famous pinball manufacturer, developed the first truly electromechanical slot machine. In 1975 the Fortune Coin Company made the first video bell slot machine. Nowadays most slot machines use video graphics. The mechanical reels and flashing light bulbs have been replaced with a computer controlled video graphics display. Newer slot machines often have 5 or more virtual reels, plus additional games giving the player a chance to double his money or get bonus wins, and they are often accompanied with short musical tunes, digitized sound effects and animated video graphics.

In 1964 Nevada Electronics produced the first solid state "21" machine. Soon it was followed by electronic versions of horse racing, poker and roulette. The first video poker used black and white graphics and it was developed by Bally in 1976. Just 8 months later Fortune Coin Company introduced a video poker machine using colour

Precursors of Video Games

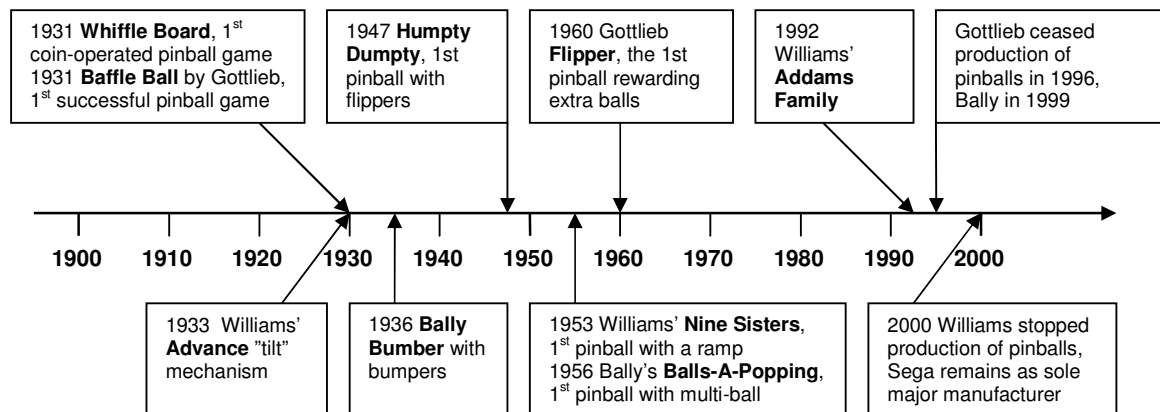
graphics. The game, which really established video poker, was Draw Poker by IGT in 1979. IGT is now a market-leading producer of gambling machines.

Video poker has now become perhaps the most popular of all gambling machines. It exists in countless variations, but in the most typical video poker machines the player tries to get the best possible 5-card poker hand. The game usually progresses so that the computer first randomly deals 5 cards and the player can select which of them to keep. After the second round the computer determines what kind of win the player gets with the 5 cards.

Pictures from top to bottom: Liberty Bell, mechanical poker game, German Bajazzo from 1905, Black Bajazzo ("sininen ihme" – "the blue wonder", a strange Finnish name as the machine is black) from 1920s, Jokeripokeri, a Pachinko game, a Finnish video poker game designed and manufactured by RAY.



History of Pinball



Introduction

Pinball is a type of coin-operated arcade game, where the player attempts to score points by manipulating one or more metal balls on a playfield inside a glass-covered case, or cabinet. Gravity makes the balls roll down on an inclined surface and if they fall into the bottom holes, they are usually lost and player has then fewer balls to play with. The primary goal of pinball is to score as many points as possible. The secondary goals are to maximise play time by earning extra balls or keeping the ball in play for as long as possible and to earn additional free games.

The Beginning

The first pinball machines were similar to the 19th century **Bagatelle table**, which was a hybrid between a pin table and a billiards table. The players tried to hit the balls with cue



stick and aim them into pockets or slots surrounded by nails and pins. At the end of 19th century the inventor Montague Redgrave patented a device called “ball shooter”, which featured a steel spring to propel the ball to the playfield.

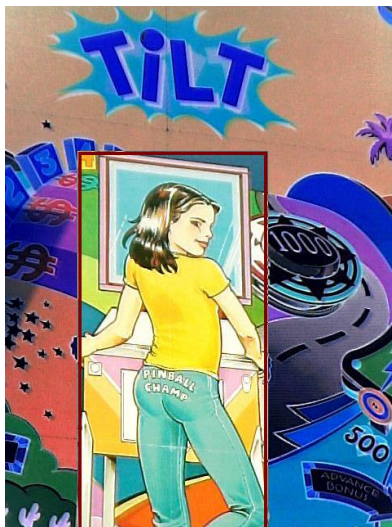
The first coin-operated pinball machine was **Whiffle Board** in 1931 by Automatic industries. Whiffle was a moderate success.

Baffle Ball

The first really successful pinball machine, called the **Baffle Ball**, was made in 1931 by inventor **David Gottlieb**. Gottlieb was a showman and an inventor with distinctive looks: short stocky build, full head of brown hair and almost always had a cigar in his mouth. He made his living by providing carnival games to Mid-Western oilfields. He founded D. Gottlieb and Company, which became the most successful pinball manufacturer of its time. Baffle Ball was so successful that, even working 24 hours a day, Gottlieb simply could not produce enough of them. By the peak of its popularity, Gottlieb shipped up to 400 Baffle Ball machines per day.

Ballyhoo

Ray Moloney saw the enormous demand for this kind of machine and designed a colourful pinball machine called **Ballyhoo**. The name Ballyhoo was borrowed from a popular magazine of the time. The game sold so well that Moloney changed the name of his company to Bally.



Advance

Gottlieb continued to be number 1 of the industry. His main competitor was a Stanford educated man called Harry Williams. Williams decided to make his pinball so that players were able to use less “body English” on the machines. In the game called **Advance** (Williams 1932) he had a device, which he named the “stool pigeon” that contained a ball set on a pedestal. If the ball was knocked off the pedestal, the game ended. This prevented players from jerking and pushing the machine too much. After a customer had complained that the machine had tilted, Williams renamed this to be the “tilt mechanism”. Later on he refined the tilt mechanism with a pendulum device and this became a standard feature on almost all pinball machines since then.

Contact

In 1933 Williams made the first electric pinball machine, called the **Contact**, for the **Pacific Amusement Company**. It was the first game to use electricity, not just gravity and mechanical force initiated by the player to move the ball. The name Contact referred to electrically powered pockets, called contact holes, which knocked

the ball back into playfield. Like the tilt mechanism, this soon became a standard feature in other pinball machines as well.

Bumper

In 1936 Bally introduced a game called **Bumper**, which was the first pinball machine to use bumpers for scoring. After shooting the ball, the player nudged the machine and tried to make the ball hit as many bumpers as possible. Each bumper was a spring, which activated a switch to add points to the score. Bumper was also the first pinball to use plastic in its construction and it became extremely popular.

Humpty Dumpty

Harry Mabs was one of Gottlieb's engineers. In 1947 he added six spring-powered levers to a game to propel the ball back into the playfield. Gottlieb called these levers "flipper bumpers" and they were first used in a game called **Humpty Dumpty** (Gottlieb 1947). Gottlieb himself called it "*the greatest triumph in pin game history*" and maybe that was true. The flippers made Humpty Dumpty more a game of skill, not just based on luck and gravity, as the player could knock the ball back into play using the flippers. In some languages, e.g. Finnish, pinball machines got their name from this invention (*flipperi* = pinball machine in Finnish). Humpty Dumpty had six flippers: a pair of them at the top, center and bottom of the playfield.

Triple Action

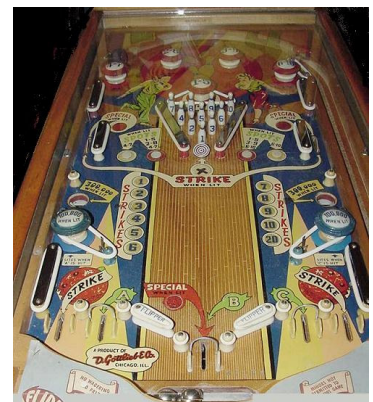
In 1948 Steven Kordek demonstrated a machine, called **Triple Action**, which had just two flippers on the bottom of the playfield. This design was quickly adopted by others in the industry.

Modern Pinball Development

The first pinball game to feature a ramp on a playfield was Williams' **Nine Sisters** in 1953. The first multi-ball pinball was **Balls-a-Poppin'** (Bally 1956). The first pinball game to reward extra balls was **Flipper** (Gottlieb 1960). The reason to add the extra balls was to counter various laws of some of the US states. These laws considered a game, which awarded replays to be a gambling activity. Gambling was forbidden. Later on the pinball machines added lots of electronics, including dot matrix displays, digital sound effects with speech etc.

Addams Family

In 1983 Bally acquired Midway, a publisher of coin-operated video games. In 1988 Williams acquired Bally Midway Manufacturing Company and the new company's name became WMS Industries Inc. The Midway division licensed the rights to



the **Addams Family**, a popular comedy horror TV series. In 1992 they produced a pinball with the same name, which became the biggest selling pinball of all time, selling 20270 units.

The Decline

The popularity of the pinball machines started to decrease as arcades became less and less common. People were more interested in playing computer and video games, which offered more varied, louder and more colourful game-play.



By the end of 1990s most big pinball companies were in trouble and the number of new pinball machines started to decrease dramatically, even though there was still innovation made in pinball games. In 1996 Gottlieb released their last pinball, **Barb Wire**. In 1999-2002 WMS, including Bally and Williams, ceased to produce pinball machines, due to their poor sales. In 2004, there was only one pinball manufacturer left in the world: **Stern Pinball** - a Chicago based company run by Gary Stern.

Pictures from top to bottom: Whiffle Board, Ballyhoo, Tilt, Humpty Dumpty, Triple Action, Spot Bowler and Addams Family. Pictures are from websites listed below.

Links

- Steve L. Kent: The Ultimate History of Video Games (pages 1-14)
Prima Publishing 2001, ISBN: 0-7615-3643-4
- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition) (pages 4-5)
Osborne 2004, ISBN: 0-07-223172-6
- Wikipedia entry on "Pajatto"
Accessed on 19th March 2006, available on:
<http://fi.wikipedia.org/wiki/Pajatto>
- Raha-automaattiyhdistys: Pajatsopelit
Accessed on 19th March 2006, available on:
<http://www.ray.fi/pelitoiminta/peliautomaatit/pajatsopelit.php?l1=6>
- Sammlung Gauselmaan: Deutsches Automatenmuseum: Skill Games
Accessed on 19th March 2006, available on:
<http://www.museum-gauselmann.de/english/public/navigation/framepage.html>
- Slottips.com designed by Andreas Viklund: History of Slot Machines
Accessed on 19th March 2006, available on:
<http://www.slottips.com/online-slots/slots-history.html>
- What is pachinko?
Accessed on 19th March 2006, available on:
<http://www.yesjapan.com/culture/culture2.mv?Pachinko>
- Wikipedia entry on pachinko
Accessed on 19th March 2006, available on:
<http://en.wikipedia.org/wiki/Pachinko>
- History of Pachinko
Accessed on 19th March 2006, available on:
<http://www.kickthefog.com/history.htm>
- Wikipedia entry on pinball

Precursors of Video Games

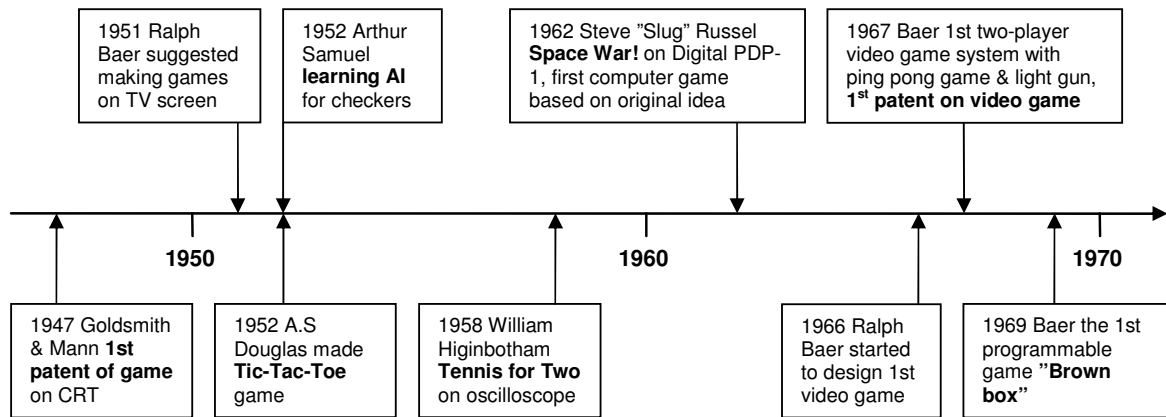
Accessed on 19th March 2006, available on:

<http://en.wikipedia.org/wiki/Pinball>

- Wikipedia entry on video poker
Accessed on 19th March 2006, available on:
http://en.wikipedia.org/wiki/Video_poker
- Wikipedia entry on slot machine
Accessed on 19th March 2006, available on:
http://en.wikipedia.org/wiki/Slot_machine
- NetBeg.org entry on Video Poker History
Accessed on 19th March 2006, available on:
<http://www.netbet.org/video-poker-history.html>
- About.com Inventors entry by Marry Bellis: Slot Machines
Accessed on 19th March 2006, available on:
<http://inventors.about.com/library/inventors/blslotmachines.htm>
- The History of Pinball Machines and Pintable
Accessed on 19th March 2006, available on:
<http://www.bmigaming.com/pinballhistory.htm>
- First Pinball Machines:
Accessed on 19th March 2006, available on:
<http://www.pinballhistory.com/pinfirsts.html>
- Paul Dean: The History of Pinball
Accessed on 19th March 2006, available on:
http://spyhunter007.com/the_history_of_pinball.htm

Timeline of the Most Important Events in the History of Computer and Video Games

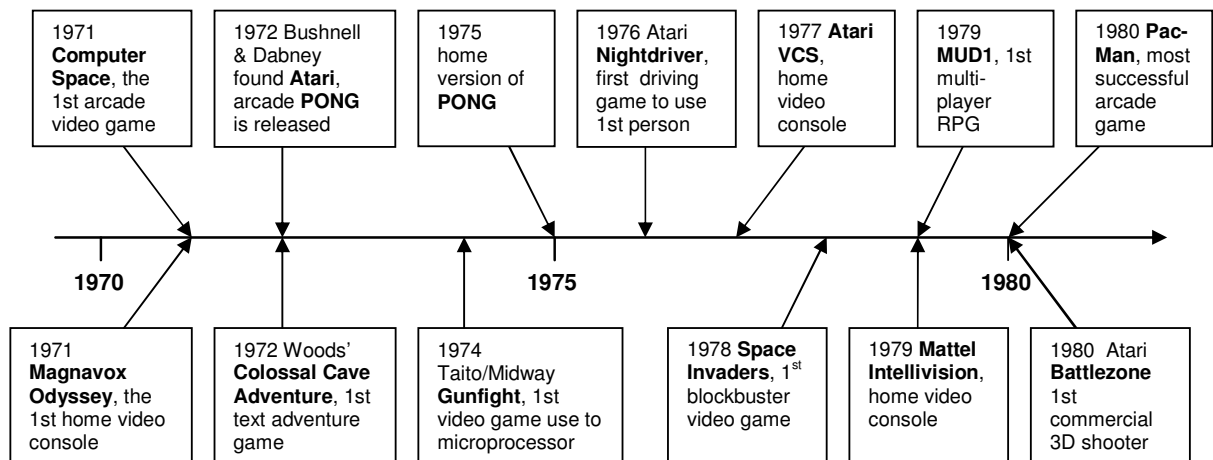
1947-1969 - The Early Years

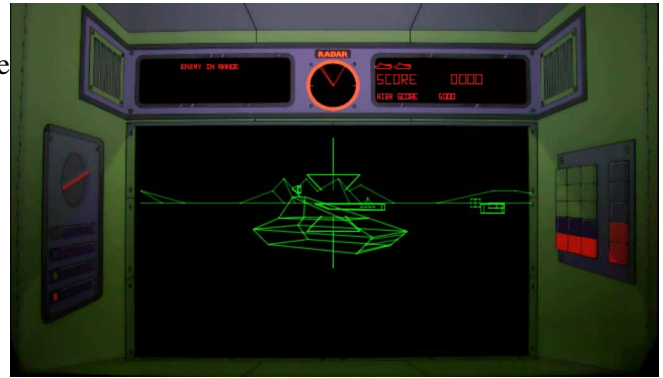


Pictures: (left) Tic-Tac-Toe game on EDSAC Computer, (bottom) William Higinbotham and Tennis for Two, (right) Space War!



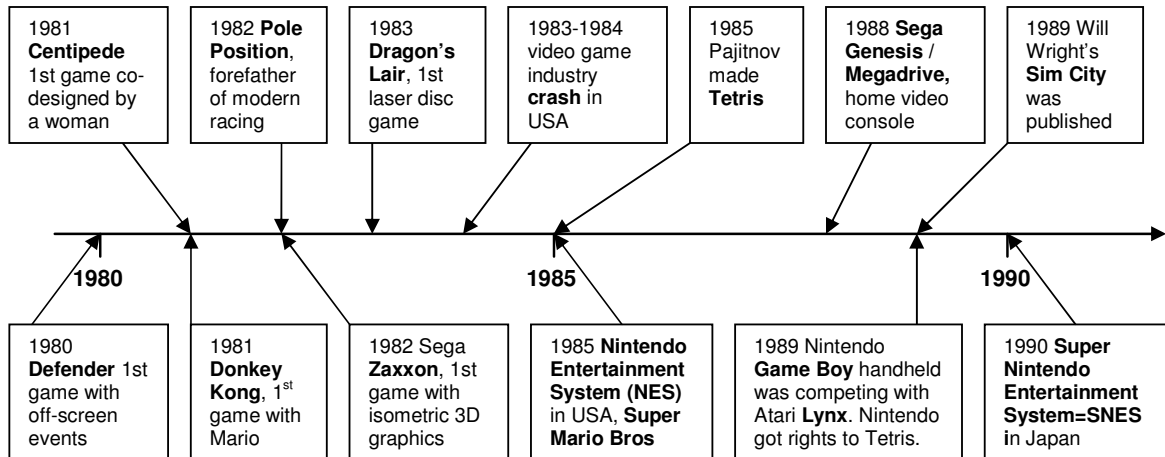
1970s - The Birth of Arcade and Home Video games





Pictures: (left) William Crowther, (top) Night Driver, (right) Battlezone

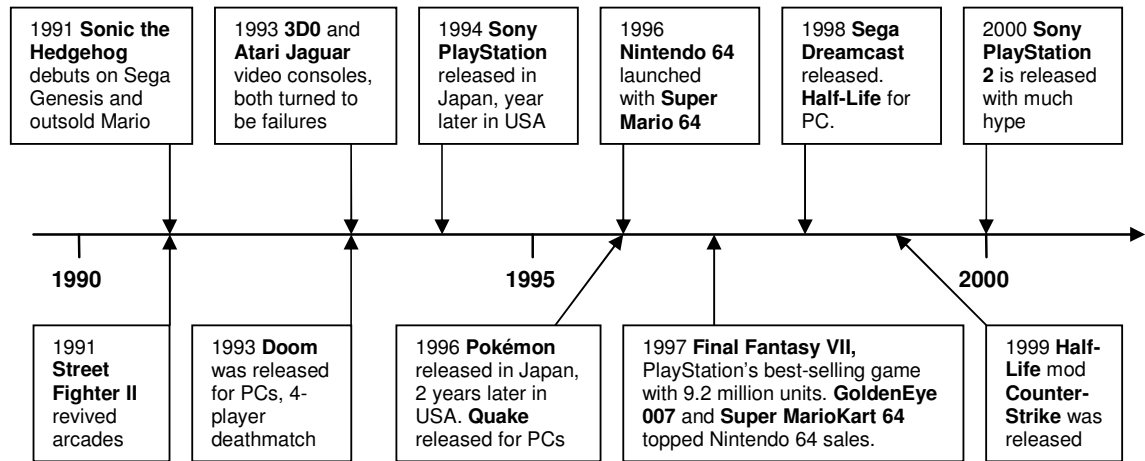
1980s - The Rise of Nintendo and Home Computers



Pictures from left to right: Pole Position, Zaxxon, Dragon's Lair
Below pictures: (left) E.T. by Howard Scott Warshaw - the biggest flop game Atari made for VCS, (right) Nintendo Entertainment System



The 1990s - Battle of Sega, Nintendo and Sony PlayStation



Picture: (left) *Street Fighter II*, (right) *Counter-Strike*

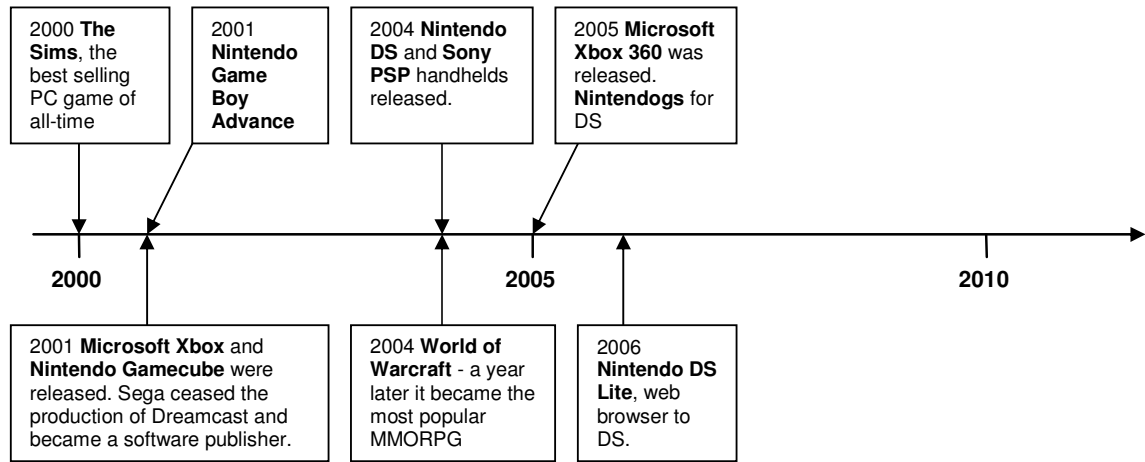


Pictures: (left) *Nokia Snake* appered in 1997, the world's first game for a mobile phone, (middle) *Soul Calibur*, the best-selling game for Sega Dreamcast



Timeline of the Most Important Events in the History of Computer and Video Games

2000- 2006



Pictures (from top left to right bottom): Microsoft Xbox, Nintendo Gamecube, Nintendo DS, World of Warcraft, Game Boy Advance



Pictures are from <http://www.thocp.net/>, <http://www.hut.fi/~eye/videogames/> and a couple of other sources

Very Important Game People

This chapter presents 30 very important game people. It is always difficult to select people for such a list. I have read several such lists over the years in game magazines. One of these lists is GameSpy's 30 Most Influential People in Gaming. The Academy of Interactive Arts & Sciences has selected 9 people to their hall of fame and all of those people have been included in my text as well.

When selecting the people to this list I have used the following criteria:

- has the person invented something really essential related to games (e.g. first home video game machine, first multiplayer home computer games) or founded/managed some really important companies
- has the person influenced game design in general
- can one learn much from the story of this person (I think all the persons I selected are very educational examples, and one should learn from their mistakes and successes as to how the game industry functions)

I have included several segments from a large number of interviews to enliven the biographies and provide insight into game design and game industry and its future. I think these borrowed segments together make a better lecture in game design than any book on the subject published so far. The people are presented with Americans first, then Japanese and finally Europeans.

References

- The Academy of Interactive Arts & Sciences
Accessed on 6th March 2006, available on
<http://www.interactive.org/awards/halloffame/inductees.asp>
- GameSpy Staff: GameSpy's 30 Most Influential People in Gaming
Accessed on 6th March 2006, available on
<http://archive.gamespy.com/articles/march02/top30/>

Ralph Baer (1922-present) – the Father of Videogame

Ralph Baer made the first video game machine connected to TV and patented it. His design was the basis for Magnavox Odyssey, the world's first home video console. Baer is behind many innovations and has over 150 US and foreign patents.



Early Idea of Having Interactive Games on a TV Screen

Ralph H. Baer was born in 1922 in South Western Germany. In 1938 he moved from Germany to the USA with his parents and sister. In 1940 he graduated from the National Radio Institute as a radio service technician. He served in the military between 1943 and 1946. In 1946-1949 he attended the American Television Institute of Technology and graduated with a BSc. in television engineering. In 1951-1952 while working as a senior engineer for Loral Electronics he got the idea of making TV more interactive by having electronics games on the TV screen. But Loral's management rejected his idea. In 1956 he joined Sanders Associates, a company making military equipment. He later became a division manager there and chief engineer for equipment design.

The Video Game is Born

In the summer of 1966 he started to think once again about using a TV set for playing games. On first of September 1966 he wrote a 4-page paper describing his plans. In this ground-breaking text he considered the following genres of games: action games, board games, educational games (he called them instructional games), board games, card games and sports games. A smart reader sees that these cover most of the existing games as well. On 6th September 1966 he also made a schematic for a two-player video game. He assigned two of his employees, Bill Rusch and Bill Harrison at Sanders Associates, to work on video games. On 7th May 1967 he played the first two-player video game and lost. On 14th June 1967 he demonstrated a two-spot game including a light gun. In November 1967 he demonstrated a fully functional ping-pong game. And on 15th January 1968 he filed the first patent for a video game. He tried to sell his game design to various TV manufacturers, which included a light gun and joystick interface.. Most of these attempts failed, but on 3rd March 1971 he made a licensing agreement with Magnavox.. The project with Magnavox was originally called **Skill-O-Vision**. Magnavox wanted to keep the manufacturing costs small cutting out several features from the original design, including capability to color display. The new product market survey conducted in summer 1971 showed that about 90% of the users liked the machine.

In May 1972 the machine was finally launched to market with the name **Magnavox Odyssey**. It was the world's first home video game system. Odyssey was able to generate only very simple on-screen effects and the players had to keep score by themselves, because the machine was incapable of doing so. Odyssey was packaged with two set screen overlays (to be placed on the TV screen to simulate complex graphics), two controllers, six game cards, play money, playing cards, a roulette and football playfield, a fold-out scoreboard, poker chips and a pair of dice. Some sources tell that Odyssey wasn't successful, selling only around 100000 units. It sold that amount during its first year. The total sales were around 350000 units. Customers' reactions were 87% positive, like: (from Baer's Videogames - in the Beginning):

"The most unique product I've seen"

"Used Odyssey in my class for mentally retarded teenagers. It has proven popular and my results even amaze me. With small adaptations it could serve the entire educational field."



Left: Early video game prototype (1967), Middle: first light gun (1967), Right: "brown box", first fully programmable video game machine (1969).

All items shown on these two pages are regularly-priced, with no Annual Sale Savings

... the electronic game of the future. A total play and learning experience for all ages!

Odyssey is the fantastic new electronic game that easily attaches to any brand 18 to 25 inch (diagonal) television to create a closed circuit electronic playground. With Odyssey you participate in television... you're not just a spectator! The fascinating casino action of Monte Carlo, the excitement of Wimbledon, the thrills of a heated game of football—all can be duplicated right in your own living room!

Odyssey is thought, action and reaction. Odyssey comes complete with a battery-powered master control unit (batteries included), six printed circuit game cards, twelve action and learning games for the entire family, eleven different game overlays and two player controls, as well as a wide variety of game aids. The master unit allows you to control the speed of the game; the player control lets you move your player vertically, horizontally and even apply "English."

Odyssey is also an electronic teaching aid. Your child can learn numbers, letters, geography—even abstract thinking! And best of all, Odyssey makes learning fun. Odyssey... it's new from Magnavox... and works with any brand TV—black and white or color. Come in now for the fun of a demonstration. Odyssey—model 11L200... **\$99.95**

All prices are Minimum Fair Trade Prices.

Optional ODYSSEY Shooting Gallery

... offers you an exciting new dimension in the enjoyment of your ODYSSEY. The SHOOTING GALLERY, model 11L950, includes an ELECTRONIC RIFLE, two Printed Circuit Game Cards and 4 different Target* Overlays in two sizes. The total unit offers 5 variations for creating your own home shooting gallery. **\$24.95**

SHOOTOUT SHOOTING GALLERY PREHISTORIC SAFARI DOGFIGHT

Other Optional ODYSSEY Games...

are available... and at a very modest price—only \$5.95 each! Once you've tried ODYSSEY you'll want to have every exciting game of legend. Here are additional games that will bring you and your family great fun and hours of entertainment. Complete instructions, as well as game aids are included with each.

VOLLEYBALL (11L900). A demanding game of your electronic "volleyball" as you try to hit the ball into the net and out of your opponent's hands.

BASEBALL (11L900). Baseball's most exciting game. You can play with one or two players. You can play with one or two players. You can play with one or two players.

FOOTBALL (11L900). Football's most exciting game. You can play with one or two players. You can play with one or two players. You can play with one or two players.

BASKETBALL (11L900). Basketball's most exciting game. You can play with one or two players. You can play with one or two players. You can play with one or two players.

TENNIS (11L900). Tennis's most exciting game. You can play with one or two players. You can play with one or two players. You can play with one or two players.

GOLF (11L900). Golf's most exciting game. You can play with one or two players. You can play with one or two players. You can play with one or two players.

HOCKEY (11L900). Hockey's most exciting game. You can play with one or two players. You can play with one or two players. You can play with one or two players.

BOXING (11L900). Boxing's most exciting game. You can play with one or two players. You can play with one or two players. You can play with one or two players.

Magnavox Odyssey (1972) magazine advertisement

In 1976-1977 Baer helped Coleco to enter the video game business with the Telstar game. He also worked on Coleco's Arcade and Combat and Magnavox's Odyssey 2 game.

Simon

In 1978 Baer designed a hand-held single-chip game called Simon. The game was based on an Atari game called **Touch-Me** (Atari 1974 for arcade version, Atari 1978 for hand-held version). The goal of the game was similar to the children's game called "Simon says" (Follow Me, copy what the leader says). The goal of the game is to repeat a sequence of 4 flashing lights. The first patterns or sequences are simpler, but



they grow more and more complex. Baer refined the idea by placing the four colored buttons on a circular shaped disc and each of them emitted a musical note. He selected the musical notes to be C-E-G-B, so that produce a pleasant melody no matter what order they are played. Simon was licensed by Marvin Glass to Milton Bradley and it became very popular and was still manufactured 20 years after its introduction.

Other Inventions

Later on he has been designing electronic children's toys, such as **Maniac** (Idea Toy 1979), **Laser Command** (Kenner 1985) and **Smarty Bear Video** (Galoob 1987). Many of his later inventions feature the use of recorded voice e.g. **"TV Teddy"** (Yes!Entertainment 1994) and **Sounds-by-Me** (Golden Books 1994), which was an interactive book, which allowed kids to record short speech segments prior to reading the book and buttons to replay these speech segments. His latest invention is **Time Frame** (IPC Frame 1997), a talking picture frame for a variable number of photos.



Not all his inventions were successes. In 1985 Baer developed a system, where a video camera was attached to arcade machine and it would take a picture of player's face. The picture would be digitized and shown along-side their scoring credits. The idea worked technically well and it sounded good at first. They took it to actual field test in an arcade in Chicago. Within a day some idiot had got up on a chair, dropped his pants and mooned to the camera. That was the end of that concept.

In 2006 president George W. Bush presented Baer a National Medal of Technology for his groundbreaking and pioneering creation, development and commercialization of video games.



All pictures from www.ralphbaer.com

References

- Ralph E. Baer: Videogames - in the Beginning
Rolenta Press 2005, ISBN: 0-9643848-1-7
- Leonard Herman: Phoenix – The Fall & Rise of Videogames (3rd edition)
Rolenta Press 2001, ISBN: 0-9643848-5-X
- Ralph E. Baer Home Page
Accessed on 7th March 2000, available on:
<http://www.ralphbaer.com/>
- President George W. Bush presents a National Medal of Technology, Monday, Feb. 13, 2006 to Ralph H. Baer
Accessed on 7th March 2000, available on:
http://www.whitehouse.gov/news/releases/2006/02/images/20060213_d-0217-515h.html
- Ralph E. Baer: The Simon Story
Accessed on 7th March 2000, available on:
http://www.dieterkoenig.at/ccc/english/se_story_simon.htm
- Atari Touch Me (1978)
Accessed on 7th March 2000, available on:
<http://www.handheldmuseum.com/Atari/TouchMe.htm>

Nolan Bushnell (1943-present) - the Father of the Video Game Industry

Nolan Bushnell didn't invent the video game, but together with Ted Dabney he made **Computer Space**, the world's first arcade video game machine. He founded Atari and started the video game industry after the big success of Pong.



Early Years and Education

Nolan Bushnell was born on 5th February 1943 in USA. His father, who was a cement contractor, died when he was just 15. Bushnell had to close his father's business, but there were several outstanding contracts, so he had to finish them first. At around 19 years of age he started to work part time in an amusement park and he soon noticed he had a knack for it. He made good money based on commission by selling balls to knock down bottles. Later-on he was made the manager of the department. He went to study electrical engineering in the University of Utah and he graduated from there in 1968. Bushnell was always interested in entertainment and he dreamt to work for Walt Disney, but they rejected his job applications, because he was – after all – an electrical engineer by education.



Computer Space

In 1962 a graduate engineering student at MIT called **Steve "Slug" Russel** had created the world's first interactive computer game with fluid real-time graphics. The game was called **Space War!** (Steve Russel et. al. 1962) and it was also the first electronic game, based on a new idea, instead of copying some existing game idea, like doing a computerized version of chess.

During his time in the university Bushnell played Space War! and he absolutely loved the game. The game only ran on a DEC PDP-1, which cost \$120 000. Russel had not bothered to patent his game and it was open-source and freely distributed with PDP-1 computers.

During his college years Bushnell had created couple of games of his own: **Tic-Tac-Toe** and **3D Tic-Tac-Toe** and **Fox** and **Geese**.

After graduating from college Bushnell was hired by Ampex Corporation, a California-based engineering firm. Space War! remained Bushnell's favorite. In the beginning of the 1970s the cost of computers had significantly decreased. Bushnell realized it was finally economically possible to bring Space War into arcades. He talked about his idea with his colleague **Ted Dabney** at Ampex. Bushnell converted his daughter's bedroom into laboratory and together with Dabney started to work on weekends on creating a commercial coin-operated version of Space War. Instead of implementing his game using general purpose components, which would have been too expensive, he used ingenious design to make the game using components, which were tailored for just one purpose only - to run that game.

After making a working prototype he needed partner to manufacture it. He made a deal **with Bill Nutting**, the founder of **Nutting Associates**, a company which had already made coin-operated machines like Computer Quiz. In 1971 the game was released as **Computer Space** (Nutting 1971).

It was the world's first coin-operated video game. The game was far too complicated for people who were not used to any sort of electronic games, besides pinball machines, and only about 1000 copies of it were manufactured. Dabney and Bushnell both got \$250 royalties for designing the game. The game had long and complicated instructions made by Bushnell himself. Bushnell himself admits the mistake:

"Nobody wants to read an encyclopedia to play a game"

Birth of Atari

Bushnell soon quit Nutting Associates, as they refused his demands for getting a big percentage of its stock and to get more power in the company. Using the money they got from Computer Space Dabney and Bushnell created a company of their own. Dabney and Bushnell first thought of naming their company Syzyzy, but luckily that name was already reserved for another company and so Bushnell decided to name the company Atari. Atari is a term from the board game Go and it is roughly the equivalent of 'check' in the game of chess.



Atari's first full-time employee was Cynthia Villanueva, a seventeen-year-old girl, who used to baby-sit Bushnell's children. Bushnell hired her as a receptionist and in order to create a false impression of bigger company he advised her to reply the phone and only after a pause, Bushnell would pick up the phone himself.

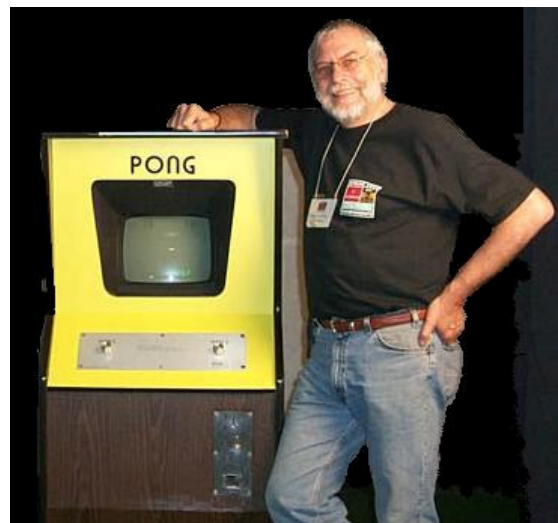


Al Alcorn

Pong

Next Bushnell hired a young engineer, Alan Alcorn as the first employee of Atari Inc. Bushnell had visions of creating a driving game, but as Alcorn had not made any games before, Bushnell gave him the task of making a simpler game. Bushnell had visited **Magnavox Odyssey Profit Caravan** and played its ping-pong game. He thought it would be the perfect first take for Alcorn to make. Alcorn made his own additions to the game, including a buzzing sound effect, when the square-shaped ball hit the paddle and the paddles were divided into 8-segments. If the ball hit the two center segments it sent the ball back in 180° angle and if it hit the outer segments, it was sent back in 45° angle.

It took almost three months for Alcorn to build a working prototype. Bushnell named the game "**Pong**" and wrote a simple instruction card to the game: *"avoid missing ball for high score"*. The prototype was placed in late September 1972 in a tavern called Andy Capp's, in Sunnyvale California. Bill Gattis, the owner of Andy Capp's, called Atari two weeks after the machine had been set there. There were several people in front of the machine, wanting to play it, but nothing happened. Alcorn went to investigate and when he opened the prototype machine, money gushed out. Bushnell was about to sell his game for pinball manufacturers, but when he heard that the machine had jammed because of overflow of money, he decided to manufacture it



himself. He didn't want Bally, a big pinball manufacturer, to take Pong so he lied to them that Midway, another pinball manufacturer, didn't want it. And he told to Midway guys that Bally didn't want it.

Some time after Atari began marketing of Pong, Magnavox took it to court. Magnavox argued that it infringed several of its patents. Magnavox could prove that it had demonstrated their home video game, including similar ping-pong game and Bushnell had attended their profit caravan and signed a guest book there. Atari was a new start-up company and it didn't have much money. Bushnell managed to negotiate a very inexpensive licensing deal with Magnavox.

With its simple, yet addictive game-play Pong became an instant hit and spawned numerous copiers. Many of these other companies had to pay much higher stiff royalty fees to Magnavox for the patents concerning these games.

Early Years at Atari

Pong and Atari really launched the video game industry. To keep up with the demand Atari had to hire much more workers. Bushnell and Dabney went to a local unemployment office and hired there pretty much anybody, including hippies and members of motorcycle gangs. The new workers manufacturing and assembly line started with a minimum wage of \$1.75 per hour. There were popular benefits like Friday night beer busts and possibility to play games for free. Atari became a place of frequent drug-use. The air was so filled with marijuana smoke that Steve Bristow (from Kent's book) was quoted to say: *"you could get stoned just breathing the air coming out of the building."*

The big pinball companies saw the lucrative new video game business. Dabney got afraid of the competition and didn't want to contribute his time running a big company, so he sold his stock to Bushnell.

In 1974 Atari got a new competitor called **Kee Games**, founded by Joe Keenan, Bushnell's next door neighbor. Actually it was a clever ploy by Bushnell. In reality Kee Games and Atari were the same company, they had just divided their research and design into two separate companies to create an illusion of more competition and avoid monopoly charges.

In 1975 Atari launched a home version of Pong, called **Atari PONG** (Atari 1975). It became a huge hit as well and was followed by a huge number of similar paddle-operated games. Many of them advertised to have lots of different games, like ice-hockey or squash or football, but the actual game-play all of these games, was pretty similar.

Atari became the biggest game company of its era, but nowadays only the name remains.



Chuck E. Cheese

In 1976 Atari was bought by Warner communications for \$28 million. Bushnell still remained as the CEO of the company. Bushnell and many other key members of Atari including Joe Keenan, had become multi-millionaires and soon lost interest in running the company. They also disliked the direction Warner was steering the company. Steve Jobs and Steve Wozniak, who had created **Breakout** (Atari 1976), approached Bushnell with an idea to make a home computer. Back then

Atari was in financial trouble and Bushnell refused them, but gave them the address of a famous venture capitalist to finance their home computer project, which was soon famous to become **Apple**.

Bushnell left Atari in 1978. While still working for Atari, Bushnell purchased Pizza Time Theaters. It was a chain of restaurants, which featured robotic animatronics animals, which played music as entertainment for the customers. Later on the name of Pizza Time was changed into Chuck E. Cheese. At first Pizza Time was a successful business, but Bushnell had many business ventures at the same time and these other ventures were a drain on finances. Chuck E. Cheese went bankrupt and Bushnell resigned from it.

New Rule at Atari

After Bushnell's departure Ray Kassar took over at Atari. Kassar had business background and new nothing of video games. He had been in Burlington Industries for 25 years. Kassar didn't approve Bushnell's "work smart, not hard" attitude and he insisted that workers would arrive at 7:30 A.M. The people at Atari hated Kassar, but Atari's profits and business started to rise under the first few years of his rule. Alan Miller, a former Atari game designer remembers a conversation with Kassar. He was asked how he was going to interact with electronic designers, because his background was from the textile industry. Kassar's reply was: *"Well, I have worked with designers all my life"*. When he was asked what kind of designers, Kassar continued: *"the towel designers"*.

Kassar called his game designer "high-strung prima donnas" and as a reaction to this one day all the workers of Atari came to work wearing T-shirts reading: *"I'm just another high-strung prima donna from Atari"*.

Despite Atari employers hated Kassar, he made the company the fastest growing company in the history of United States. In 1977, the year before Kassar became CEO, Atari had \$75 million in sales and few years later the company made \$2.2 billion in sales.

However Atari began to lose lots of its key employees. In 1979 music industry executive Jim Levy and former Atari programmers and game designers David Crane, Larry Kaplan, Alan Miller and Bob Whitehead formed a company called **Activision**. It became the world's first 3rd party game publisher and developer. It began making games for Atari VCS home video game system, which had previously only had games published by Atari itself. Atari didn't credit its game creators, nor even did allow their real names to be told to public, being afraid they might be stolen. Activision adopted a totally different strategy from music industry, putting game designer's name in big letters and promoting them to be big stars.

In early 1980s the leadership of Atari didn't understand the game software business required good games, and how they were made. Kassar didn't like to play games himself. The management thought a good brand and name could sell anything. Perhaps the biggest flop was **E.T.** for Atari VCS/2600. It was based on the hit film of the same name directed by Steven Spielberg Atari paid \$20 million for the rights of the game. The game project was given to Howard Scott Warshaw, who had already made **Yar's Revenge** (Atari 1981). He was given only 6 weeks to finish the game, which was of course too little time to make a good game. The resulting game was awful and got incredibly bad reviews everywhere touting it with the title "worst video game ever". Atari was however so confident that the game would be a huge seller, just like the film, so they had manufactured more ROM cartridges of the game, than they had sold Atari VCS home consoles. Atari had to dump millions on cartridges into a land fill in New Mexico. In 1983 Atari made \$536 million losses. Warner sold the company in following year and Kassar was forced to leave as well.

Atari began the video game industry and for several years it was the biggest company in the business, but nowadays only its name remains.

Man of Many Companies

Bushnell is a true entrepreneur and a person, who is constantly starting a dozen new things at the same time. He has founded over 20 new companies and the Catalyst Technologies Venture Capital Group, which also acted as the incubator for many of his companies. Most of his companies have failed. His latest company is uWink, which he founded in 1999.

Nolan's Theorem

According to High Score (and a couple of other sources), Nolan's theorem of game design is: "All the best games are easy to learn and difficult to master. They should reward the first quarter and the hundredth"



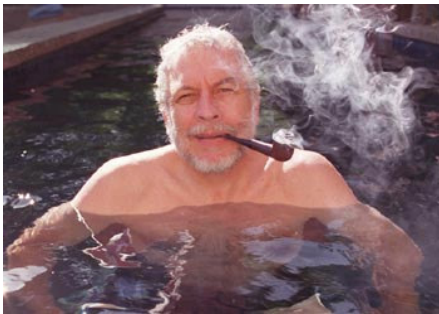
Killer Application of the Multimedia Industry

In www.thetech.org interview Bushnell expressed his opinion about the killer application of the multimedia industry:

Question: Were there times when you were frustrated or people looked at you like, ahh, you're just a kid and you have a game and didn't take you seriously?

Bushnell: It happened incessantly. In fact, there are still people who don't understand that games are serious business even though it's a multi-billion dollar industry. You'd go to these conferences, and they're called multimedia conferences. And they'd say, "What's the killer app?"

And I'd say: "Guys, the killer app for multimedia is games..." And then they'd say: "But what's really going to be important?" ...People would look at you like you like you had three heads. "You mean you're going to put the TV set in a box with a coin slot and play games on it? Oh, and then you're going to have people hook them up to their own TV set? Oh, I don't think so."



Comeback of Classics

In news.com interview:

"Question: The classic Atari games still show up on phones and other gadgets. Have you been surprised at how durable those games have been?"

Bushnell: Actually not. I think that at the core of every game, there's timing, tensioning and strategy. In some ways, the old games are a little bit purer because they completely focused on those elements instead of production values.

If you have a tournament chess player, they will only play with one kind of chess set. They don't want pieces made of glass or intricately carved things. All those production values that make very pretty chess sets actually make the game harder to play. In some ways, if you focus on production values and you short-change rules and structure, you end up with a poorer game than something that's really simple."

Pictures from computermuseum.50megs.com user.trinet.se/~awb466s, www.mondotees.com and other

References

- Steve L. Kent: The Ultimate History of Video Games
Prima Publishing 2001, ISBN: 0-7615-3643-4
- Ralph E. Baer: Videogames - in the Beginning
Rolenta Press 2005, ISBN: 0-9643848-1-7
- Leonard Herman: Phoenix – The Fall & Rise of Videogames (3rd edition)
(pages 11-15 and many more) Rolenta Press 2001, ISBN: 0-9643848-5-X
- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games
(2nd Edition)
Osborne 2004, ISBN: 0-07-223172-6
- Wikipedia article on Nolan Bushnell
Accessed on 7th March 2006, available on
http://en.wikipedia.org/wiki/Nolan_Bushnell
- Joyce Gemperlein & Tenaya Scheinman: An Interview with Nolan Bushnell
San Jose Mercury News
Accessed on 7th March 2006, available on
http://www.thetech.org/exhibits/online/revolution/bushnell/i_a.html
- David Becker: Newsmaker: The Return of King Pong
CNET news.com 15th March 2005
Accessed on 7th March 2006, available on
http://news.com.com/The+return+of+King+Pong/2008-1043_3-5616047.html?tag=sas.email

Ed Logg – designer and programmer of Asteroids, Centipede and Gauntlet

Ed Logg is the most famous and commercially successful arcade game designer and programmer, who worked for Atari. He is famous for creating such best-selling arcade games like Asteroids, Centipede and Gauntlet.

Early Games

Ed Logg is perhaps the most legendary game designer and producer, who has worked for Atari. Short, a bit stubby, but not fat, and wearing spectacles, Logg is the classic example of programmer and game designer in the same person.

His first game for Atari was **Dirtbike**. The prototype was play tested, but the game was never released.

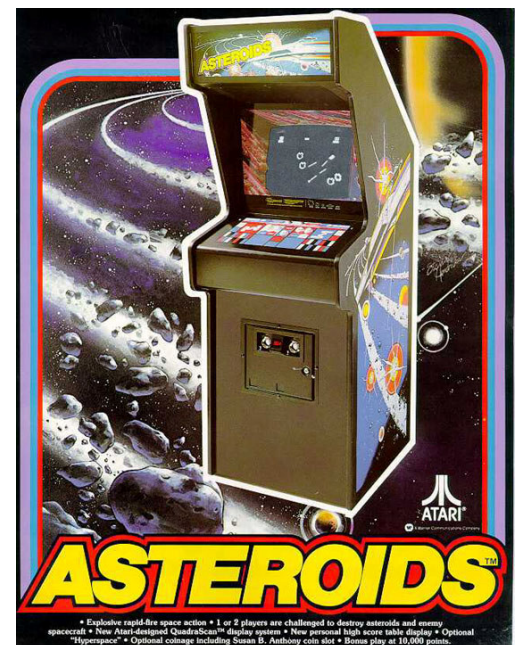
Super Breakout (Atari 1978) was his first published game. It was a follow-up to the popular **Breakout** (Atari 1976). It included 3 variations of Breakout: progressive, double and cavity breakout.

In 1978 he made **Atari Football** together with Lyle Rains and Dave Stubbens. It was one of the first games ever to have a scrolling playfield and Atari patented that idea, and that patent later proved to be very profitable.

In 1979 Ed Logg made **Video Pinball**, which was the world's first pinball simulated by realistic video graphics. Logg himself had not come up the idea of the game and believed that it would not do well, because a real pinball game would still be a better experience. Still he programmed the game the best he could. The resulting game had smooth 60 frames/s graphics and became an instant hit selling 1500 units.

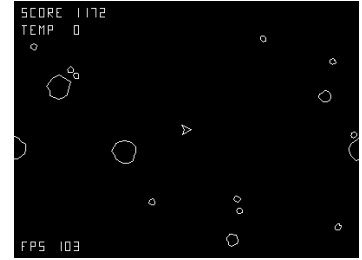
Asteroids - The Most Successful American Arcade Game

The most well-known of Logg's game is **Asteroids** (Atari 1979), which became the most popular arcade game in USA, only to be surpassed a year later by Pac-Man (Namco 1980). His colleague Lyle Rains had suggested to him to make a game, where the player could shoot asteroids, because there had been an arcade game, where a player could shoot indestructible asteroids. Logg made his own version of the game idea, by adding a flying saucer and making the asteroids split into smaller ones after you shot them. The goal of the game was to clear the screen of all asteroids. Originally the flying saucer appeared on the screen as soon the player began the game. Players complained and Logg added a delay before it appeared and started to shoot at the player. Logg recollects watching a player playing his game and dying 3 times in 20 seconds. The player put another quarter in and proceeded to play. This tells that the player thought that the death was his fault and the game had the magnetic pull, which made people play it more and more. Rains and Logg worked so intensely on



Asteroids that they often dreamt about the game.

Ed Logg recalls: *“I was shooting the asteroids all night long; I'd just play the game over and over and over in my head, just as if you were playing it in real life. To a certain extent, I play a lot of the games in my mind long before I ever write them because you have to get all the interactions down pat before you can start programming. I know what it's going to look like before I even get there.”*



Asteroids is considered a masterpiece of design and the vector graphics visuals it contained can be considered state of art for the time. Here are several opinions of the game:

Steve Calfee said : *“A lot of people really liked it. Somehow, there's something about people, they like to clean spaces. With Asteroids it's easy to measure your accomplishment, you're breaking big rocks into little rocks and then the little rocks into nothing. It's sort of a metaphor for life.”*

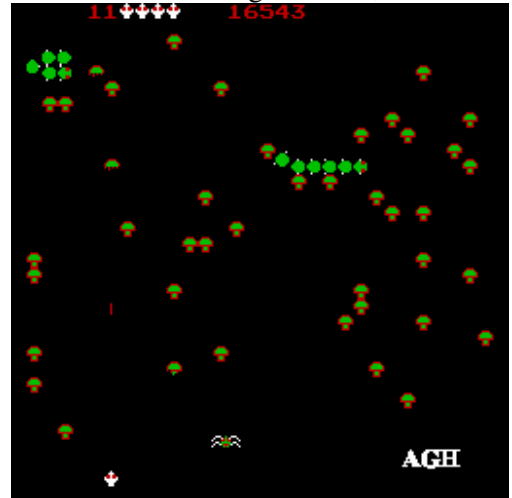
Rich Adam said : *“Asteroids fulfilled the fantasy of being out in space, with no gravity, and free floating. The spaceship had a very elegant grace. A lot of motion in the game had grace, even the way the boulders floated around.”*

Ed Rotberg, the creator of **Battlezone** (Atari 1980), recalls how Ed Logg had to drive him and others out of his laboratory. They used to sneak there to be able to play Asteroids and make a new high score (Asteroids is often quoted to be the first game to have a high score list, but Logg said there was one earlier game, unfortunately not mentioning what it was).

Asteroids is Atari's bestselling arcade game of all time, with about 56,565 units produced.

Centipede - Co-designed by a Woman?

Centipede (Atari 1981) is often mentioned in game history texts as the first arcade game ever, co-designed by a woman. Ed Logg was first the producer of the project and he had been assigned a new female worker, Donna Bailey. He could not, however, keep his hands off the project and he quit his supervisor role. According to Logg's interview in Rouse's Game Design book he did about half of the programming of the game and the entire game design, as it was Bailey's first project. Nevertheless the game got positive popularity by being designed by a woman and it actually attracted a large number of female players. The goal of the game was simple: shoot anything, like in most shoot-em-up games of its era. But instead of setting the game in space, the game featured mushrooms, insects and a long centipede, which came down from the top of the screen towards the player, which was moving an Atari-logo shaped character in the bottom part of the screen.



In Bailey's prototype the mushrooms were indestructible, but when Dan Van Elderen asked Ed Logg, why the player could not shoot the mushrooms, Logg decided to change the game. He made it so that the players could shoot mushrooms and a new mushroom was born where the player shot the centipede segment.

Millipede - and Games That Never Saw the Daylight

Many of Atari's early employees were hippie types and were known to take drugs. Logg never took drugs nor took part in drinking binges. Despite His quiet, modest demeanor Logg still earned

respect. His fellow game designers nicknamed him "Golden Boy", because he had a longer string of hits than any other game designer at Atari.

When Logg was asked was he given freedom to design **Millipede** (Atari 1982), the sequel of Centipede, he replied:

"With my past record I was given more freedom than anyone else. Something most people do not understand that half of the games I started did not make it into production. No one ever hears about the failures. Some of the games I actually killed myself. That's something I believe no one else at Atari did. Of course, there are a few I tried to kill but was allowed to that eventually died. These days you would probably see them come out in the consumer market anyway just to get back some development cost. But in the coin-op market there is not chance to sell anything that isn't a clear winner."

Gauntlet - 4-player Multiplayer Action Role-Playing Game

In 1985 Logg designed and programmed a game called **Gauntlet** (Atari 1985). It was a top-down view 2D co-operative shoot-em-up game inspired by Dungeons & Dragons role-playing games. The players could select between: Elf, Valkyrie, Wizard or Warrior. Each character had different characteristics and the game allowed four people to play at the same time using a single scrolling screen area. It was the first game, which allowed players to join in at any time. Tank 8 was an earlier game, which allowed 8 players on the same monitor, but it required all the players to start at the same time. In Gauntlet players could get 2000 more health units by putting in another coin. The game features good graphics and speech with many sentences, which are memorable. Ed Logg's own favorite speech quote from the game is "the wizard seems to be eating all the food lately". A year later Logg came up with a sequel, **Gauntlet II** (Atari 1986). It didn't change the game-play much, but allowed players to select the game character, now everybody could choose wizard or warrior if they wanted.

In 1987 he made a unique 3D shoot-em-up game **Xybots** (Atari 1987). It features 3D graphics, but the player was limited to making only 90-degree turns.



Tengen-Version of Tetris

Ed Logg fell in love with game of **Tetris** and in 1988 he made a conversion of Tetris to NES, which was released under the label of Tengen. However it turned out that Nintendo had all the home console rights of Tetris and Atari had to pull out their NES version of Tetris from the market. Later on it has become a rare collectors item and many people consider it as the best implementation of Tetris, at least for NES.

Logg and the Future of Arcade Gaming

Ed Logg's latest game is **San Francisco Rush 2049** (Atari/Midway 2000, the original arcade version 1996) for Dreamcast and N64 in 2000.

Ed Logg's opinion about the current state of arcade games and their future:

"The coin-op market seems to be all driving, fighting and shooting with an occasional sports title, like golf. There are reasons for this. Driving has universal appeal and usually earns for long periods. So it is often the most accepted game theme. Besides, most home units do have steering wheels and gas pedals or give you the feel of being inside a car. So you cannot get this experience in the home. Fighting games are now difficult to sell in the arcades and I believe this is because you can get the same experience on most advanced consoles. At the time they were cheap and earned big bucks. Shooting games are still a viable because guns are not standard controller on consoles or PCs."



Logg's analysis is excellent. It only lacks **Dance-Dance Revolution** (Konami 1998) and similar dancing games, which are now the most popular games in arcades, after driving games.

References

- Steve L. Kent: The Ultimate History of Video Games
Prima Publishing 2001, ISBN: 0-7615-3643-4
- Rouse, Richard III: Game Design – Theory & Practice (pages 93-120)
Wordware Publishing 2001, ISBN: 1-55622-735-3
- John Sellers: ARCADE FEVER The Fan's Guide to The Golden Age of Video Games
Running Press Book Publishers 2001, ISBN: 0762409371
- Alexis Bousiges: Arcade-History.com List of Games for Ed Logg
Accessed on 4th of March 2006 and available on
http://www.arcade-history.com/history_database.php?page=person&name=Ed%20Logg
- James Hague: Halcyon Days Interview of Ed Rotberg
Accessed on 4th of March 2006 and available on
<http://www.dadgum.com/halcyon/BOOK/ROTBURG.HTM>
- Classic Gaming Expo Biography of Ed Logg
Accessed on 17th of March 2006 and available on
<http://www.cgexpo.com/bios/elogg.htm>

Eugene Jarvis (1955-) – Game Designer and Programmer of Defender and Robotron: 2084

Eugene Jarvis has created two of the most-beloved arcade games among video game collectors: **Defender** and **Robotron: 2084**. Both feature fast and fluid action and game-play with high difficulty.

Atari Didn't Hire Him

Eugene Jarvis was born in Palo Alto, California in 1955. His first encounter with computers was in school attending a one-day course in Fortran programming given by IBM. Jarvis got to play **Space War** in the basement of the physics lab of University of California, Berkeley.. Jarvis gained his bachelor's degree in electrical engineering and computer science in 1976 from University of Berkeley.



Just before his graduation Jarvis was interviewed by Atari, but he didn't get a call back from them. He had an interest in natural language processing and was hired by Hewlett Packard to create a COBOL compiler. He disliked the culture of HP finding it boring and quit only after 3 days of work. On the same day he got a phone call from Atari and they hired him to make software for the first pinball games using microprocessors. A few years later Atari's pinball development failed and Jarvis moved to Williams in Chicago to continue programming pinball games.

Defender - First Side-Scrolling Shooter Game with Off-Screen Actions

Together with a famous pinball game designer Steve Richie Jarvis created the concept of **Defender** (Williams 1980), a side-scrolling space shooter partly inspired by **Space Invaders** (Taito 1978). Defender was published in 1980 by Williams. In the game of Defender the player controls a small space ship, which is flying above a long mountainous landscape both seen from side perspective. The landscape is much larger than would fit on one screen and it wraps around so the player can eventually reach the starting point by traveling long enough to either left or right. Defender was the first action game to have a game world, larger than one screen, where there was constantly action also outside the display area shown on screen (many games used a technique where everything which was outside of screen is frozen to save computing power). The goal of the game is destroy all aliens and protect the humans from being captured. The game was really hard as the player had to constantly keep an eye on a radar to avoid the humans from being killed outside of the screen area. The player could also accidentally shoot a humandead. The game had unique controls e.g. there was a button to reverse the horizontal movement direction instead of a traditional joystick left-and-right pressing. Because of its complicated controls they predicted that Defender would be a failure. The predictions were wrong and it became one the best selling arcade games of all time, selling more than 60000 units. The game was ported to numerous home platforms as well.



Designers Get Ripped Off

Jarvis estimated that the game made about \$3.8 billion dollars to Williams. Jarvis realized that the game designers were being ripped off, when Williams Electronics offered him only a moderate bonus and some stock options.

In 1981 Jarvis and Larry DeMar founded an independent game development firm called Viz Kid. Their first game was **Stargate** (Viz Kid/Williams 1981), an enhanced sequel to Defender.

Robotron: 2084 and Dual-Joystick Controls

In 1982 Jarvis and Viz Kid made another shooter game called **Robotron: 2084**, which also featured unique controls. Jarvis had been involved in a road accident and his right hand was in plaster. It is very difficult to use standard video game controls with stick and action buttons with a plastered hand. So because of this he chose a design, which utilized two 8-way joysticks: one for movement, one for shooting. Robotron is considered one of the most hectic shooter games ever. Each level begins with the player character located in the centre of the screen with varying enemies and deadly objects scattered randomly around the screen. Many of the enemies approach the player character, so he needs to be moving all the time and varying his shooting angle. The two joystick controls allowed the player to shoot in a different direction than the movement and mastering this is really essential in Robotron.

Both Defender and Robotron have been ported to multiple platforms and have had a fair share of remakes. The most famous and the best remake of Robotron is **Llamatron 2112** (Llamasoft 1989) by Jeff Minter, improving the original game-play with increased variation and other innovations.

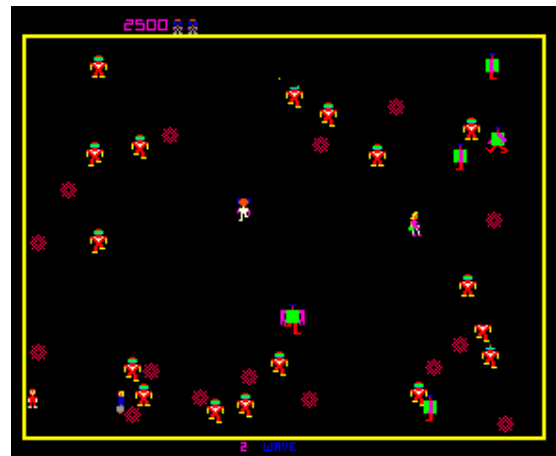
Later Games by Jarvis

The video game crash in the USA hit Williams hard in 1983 and they had to shut down most of their arcade operations. Jarvis left Vid Kiz in 1984 and went to Stanford University to continue his studies. He graduated from there with an MBA in 1986. He continued to develop games and co-developed **Narc** (Williams Entertainment 1988) and **Smash TV** (Williams Entertainment 1990). The latter game was heavily influenced by Robotron.

Currently Jarvis works for his own company called Raw Thrills Inc, which is making 3D shooter games.

References

- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition) (page 61)
Osborne 2004, ISBN: 0-07-223172-6



Eugene Jarvis

- Wikipedia article on Eugene Jarvis
Accessed on 4th March 2006, available on http://en.wikipedia.org/wiki/Eugene_Jarvis
- Melissa H. Bearn: Master of the Game
The Medill New Wire 11/17/1999
Accessed on 4th March 2006, available on
<http://www.melissabearns.com/games.html>
- James Hague: Halcyon Days Interview of Eugene Jarvis
Accessed on 4th March 2006, available on
<http://www.dadgum.com/halcyon/BOOK/JARVIS.HTM>
- Wikipedia article on Defender
Accessed on 4th March 2006, available on [http://en.wikipedia.org/wiki/Defender_\(game\)](http://en.wikipedia.org/wiki/Defender_(game))

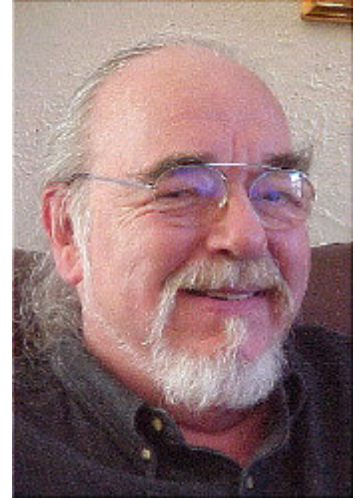
Gary Gygax (1938-) – Co-Creator of Dungeons & Dragons

Gary Gygax is the co-designer of the Fantasy Game and Dungeons & Dragons, which serve as the basis for almost all modern role-playing games. He also designed the Advanced Dungeons & Dragons role-playing system and the Greyhawk role-playing game world.

Early Years of Miniature War Gaming

Ernest Gary Gygax, was born on 27th July 1938 in Chicago, Illinois, USA, as the son of Swiss immigrant and American mother. His mother taught him to play card games like pinochle at age 5 and a year later how to play chess. Together with his friends John Rasch, Don Kaye, and Jim Rasch as the referee or game master, they also performed imaginary plays – similar to live action role-playing. Then Gygax began to read fantasy books, especially those written by Jack Vance and Robert E. Howard.

In 1953 Gygax started playing miniature war games with Don Kaye. He especially liked **Gettysburg** (Avalon Hill 1964), a board strategy game designed by Charles Roberts. In 1966 Gygax co-founded the **International Federation of War Gamers**.



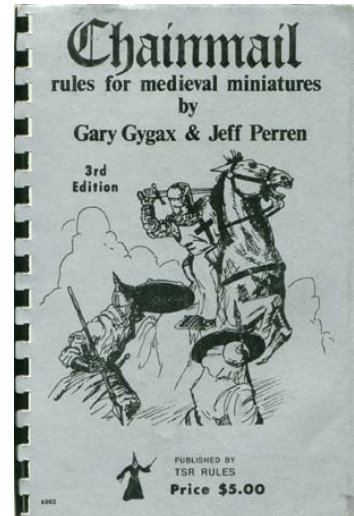
Gary Gygax dropped out of school and didn't spend more than a year in college.

In 1967 Gygax invited about 20 persons to his home to play together. Later this was named “Gen Con 0” as it led to the birth of **Gen Con gaming convention** on the following year. Gen Con is world's largest and longest running annual hobby-game gathering. There Gygax met Brian Blume and Dave Arneson.

In a Game Spy interview Gygax was asked:

“How did you get started with the medieval war game that eventually became Chainmail and later, Dungeons & Dragons?”

Gygax: “I'm very fond of the medieval period, the Dark Ages in particular. We started playing in the period because I had found appropriate miniatures. I started devising rules where what the plastic figure was wearing was what he had. If he had a shield and no armor, then he just has a shield. Shields and half-armor = half-armor rules; full-armor figure = full armor rules. I did rules for weapons as well. Sometimes, though, instead of fighting these mass battles, we would fight small battles where one player controlled one warrior. I'd say, 'O.K., you're the Viking warrior. Here's your figure. You're the Saxon warrior here's your figure.' After a while, though, the guys got tired of playing. I decided one day that we were going to play a little variation of medieval combat. I secretly told one side, 'O.K., you guys have a wizard in your group and here's what he can do: He can throw a fireball,' and the fireball rules were exactly the same as the heavy catapult. I then gave the other side a lightning bolt, which was the same as our medieval cannon.”



Chainmail

Gygax and Jeff Perren wrote “**Chainmail – Rules for Medieval Miniatures**”. Chainmail was published in 1969 by Guidon Games.

Dungeons & Dragons

Dave Arneson began to have games where each player controlled just one character, instead of controlling a unit or team of players. In 1970 Arneson created a battle scenario involving a castle sewer – a sort of precursor of role-playing game adventures set in a dungeon. A year later Arneson and Gygax began to collaborate to create “**The Fantasy Game**”, which was later to be known as **Dungeons & Dragons** (D&D). Gygax was investigating new methods of generating random numbers. One day when he was looking at a catalogue for school supplies he saw Platonic Solids. He immediately knew they would make good dice. Gygax decided to introduce 6 different dice named D#, where # is the number of the sides of the dice: D4, D6, D8, D10, D12, and D20. Our traditional 6-sided dice is of course called D6. D10 is actually not a Platonic Solid, but it is very useful e.g. two D10s can be used to generate, so called, percentage dice, a random number from 0-99 or from 1-100 (where one D10 represents tens).

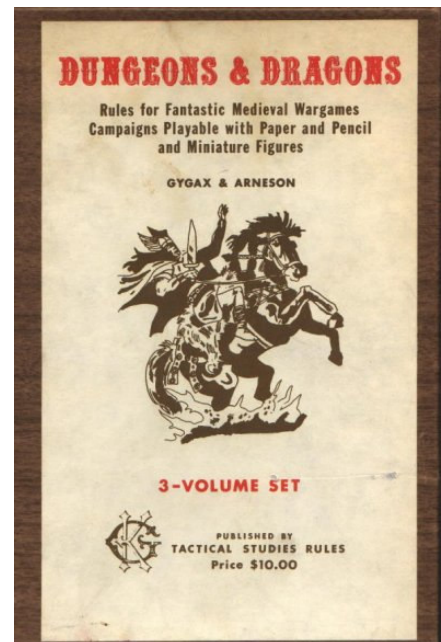


Birth of TSR

Both Gygax and Arneson wanted to publish the game, but they had trouble finding a publisher for the Fantasy Game. Gygax tried to offer it to many companies, including Avalon Hill, but they all turned it down because of its open-ended nature. There was no way to win a role-playing game. Finally they decided to self-publish it. Arneson didn't have money for the venture, so Kaye joined in.

In 1972 Gary Gygax and Don Kaye formed a partnership called **Tactical Studies Rules** (TSR). Two years later Brian Blume joined TSR and brought in financing to publish “The Fantasy Game”. They managed to sell all 1000 hand-assembled prints in 9 months. In 1974 Gygax hired Tim Kask to change The Strategic Review into a fantasy periodical, later known as the Dragon Magazine with Gary Gygax as main author, later as a columnist.

Kaye died of a heart attack in 1975 and Gygax bought Kaye's shares from Kaye's widow. The remaining owners, Blume and Gygax, formed a new company called **TSR Hobbies Inc.** They transferred all the assets to the new company and Tactical Studies Rules was dissolved. In 1983 the name of the company was shortened into **TSR, Inc.**



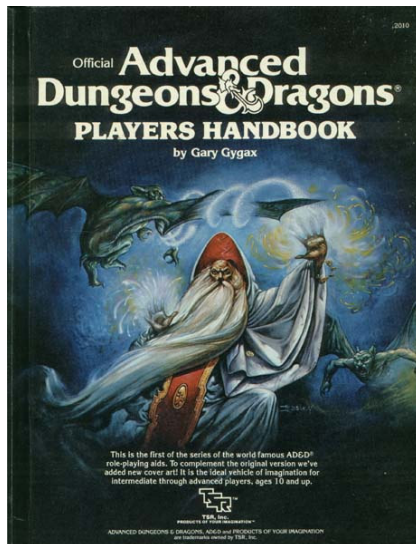
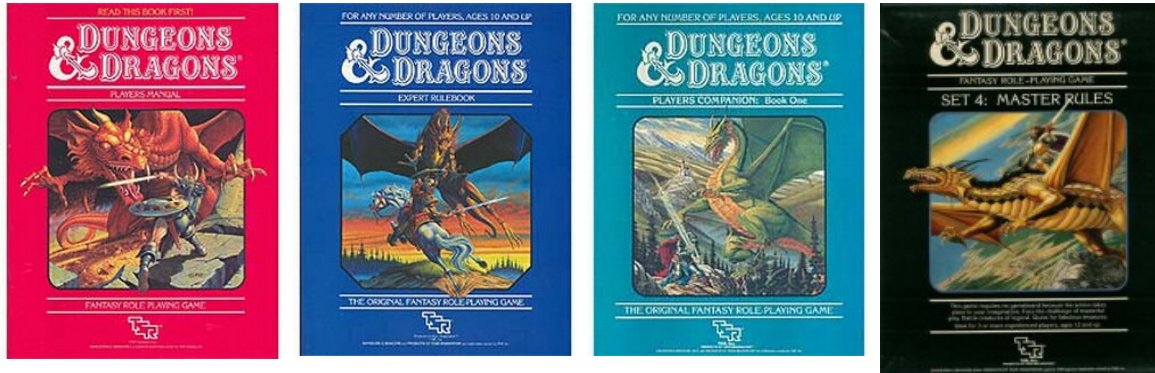
Greyhawk

The Fantasy Game was renamed into “**Dungeons & Dragons**”, a name coined up by Gygax's wife. The first product to be published was Empire of the Petal Throne (TSR Hobbies 1975). In the same year also two supplements were published describing the game world, important characters, Gods and a history called Blackmoor and Greyhawk. The first was created by Dave Arneson and the latter was created by Gary Gygax with Rob Kuntz. Greyhawk's campaign setting including a new character class, called thief, to complement the 3 character classes already present in the game: fighter, cleric and magic-user. Greyhawk still remains the standard game world of D&D games.

D&D Rule Sets

The purchase of Kaye's stock had put Gygax under financial pressure and he was forced to sell nearly half of his holdings to Brian Blume and Blume's father Kevin. At the end of 1976 Brian and Kevin Blume controlled 60% of TSR shares, while Gygax controlled 30%.

In 1977 the **Basic Set** of Dungeons of Dragons was published. It was a sort of simplified version of the Fantasy Game, providing rules for only the first 3 levels. Later on it was followed by **Expert Set**, **Companion Set**, **Master Set** and **Immortal Rules**, which provided rules from the first level character to the maximum level (36 for humans) and then ascending to immortal (deity-level) status.



Advanced Dungeons & Dragons

During 1977-1979 Gygax created **Advanced Dungeons & Dragons** (AD&D), which was a sort of second edition of D&D. AD&D was incompatible with D&D, but the rule systems had so many similarities that many players used the materials from the other. It was published in 3 parts. The first of them was **Monster Manual** (TSR Hobbies 1977), followed by **Players' Handbook** (TSR Hobbies 1978). A year later **Dungeon Master's Guide** (TSR Hobbies 1979) was published.

Golden Years of TSR

TSR Hobbies was no longer limited just to D&D, AD&D and fantasy RPGs. In 1980 they published **Top Secret**, an espionage game.

In 1981 TSR had its best year ever, posting sales of \$16.5 million dollars, with a profit of \$4.25 million. By 1982 TSR Hobbies broke the 20 million mark in sales. Gygax was a big believer in having only short-term debt. His rule of thumb was that the debt should not exceed the sales of a single month. Under Gygax's rule TSR flourished, becoming the biggest name in table-top role-playing games.

Troubles Arise at TSR

However troubles arose in 1982 when Gary Gygax became occupied with making a cartoon series based on D&D. Nobody on the West coast wanted to make a deal with TSR Hobbies, so Gygax created a new company called **Dungeons & Dragons Entertainment**. It took him lots of hard work to get recognized in the entertainment industry. Finally he managed to make a contract with CBS for a cartoon series. While he had been gone, TSR Hobbies had run into severe financial trouble and

was \$1.5 million in debt. In 1985 the Blumes used their majority to reorganize the company. Gygax was nominally the CEO, but Blume was running the company. The Company ran into more and more debt, amounting to \$15 million. Gygax managed to convince the entire board of TSR to set Blume aside. Gygax managed to take control of TSR for about 3 months, during which time he contacted Arneson, asking him to do a series of modules based on Blackmoor.

Lorraine Williams Takes Control

Perhaps as revenge the Blumes sold their stock to Lorraine Williams, the granddaughter of Flint Dille. Gygax was convinced that Williams was not fit to rule the company, so he tried to stop it, but a judge ruled in court against him. With stock majority Lorraine Williams took over the company and Gygax decided to sell his stock. He left the position of president and chairman of the board of directors of TSR in 1986.

Lorraine Williams had previously owned the licensing rights to Buck Rogers, which she had inherited from her grandfather. She didn't like gamers, whom she didn't consider her social equals. She claimed she would show the gaming industry how *"it was done"*. Under her reign the company doubled its debt to \$30 million. During the 1990s many gamers started to call TSR as T\$R or "They Sue Regularly", because they wanted royalties from fan-created D&D content.

After leaving TSR Gygax created **Dangerous Journeys** (Games Designer's Workshop 1992), which was a role-playing game supporting many genres. The financial troubles of TSR continued after Gygax's departure. Gygax describes the situation:

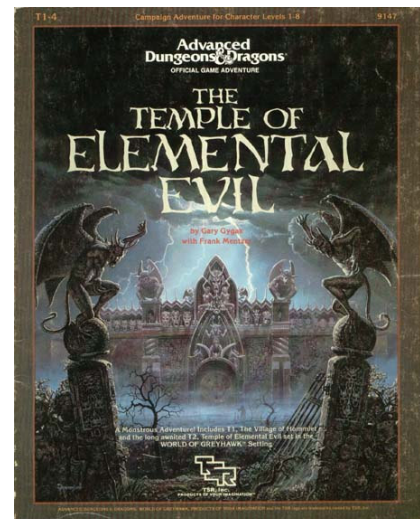
"I came out with a game called Dangerous Journeys and TSR sued us! Eventually, we settled and I'm pleased to say that I think the amount of money it cost them to sue us and pay out in settlement was what really drove TSR under. A couple years later when Wizards of the Coast took over the company, TSR was over 30 million in debt, 27 million of it secured and the rest unsecured. The woman who took over from me who was gonna show everybody how to run the company lost somewhere between two and three million a year."

Wizards of the Coast

In 1997 **Wizards of the Coast**, Inc., a Seattle based company who had made their fortune with Magic the Gathering, a trading card game, purchased TSR, Inc. In 1999 Wizards of the Coast was bought by Hasbro, Inc., one of the biggest toy manufacturers in the world, which also owns the rights to many popular board games like **Monopoly** and **Risk**.

More Gygax's Creations

Gary Gygax didn't just co-author the rule system and the Greyhawk game world, he also wrote several novels set in the world of Greyhawk and wrote several popular adventures and game supplement books for it as well, including **Queen of Demonweb Pits** (co-authoring 1980, featuring the drow, the dark elves and their goddess Lolth, later to be popular in books by R.A.Salvatore), **Tomb of Horrors** (TSR 1978), **Vault of the Drow** (TSR 1978), **The Keep on the Borderlands** (1981), **Descent in the Depths of the Earth** (TSR 1981), **The Land Beyond the Magic Mirror** (TSR 1983), **The Temple of Elemental Evil** (TSR 1985), **Isle of Ape** (RST 1985) and **Queen of Spiders** (TSR 1986). Many of these adventures are considered the best in their genre and Temple of Elemental Evil was made into a computer game by Troika Games in 2003.



Many people consider his best work to be *The Legendary Rules for All Players* (Hekaforge Productions 1999), a role-playing system designed by Gygax.

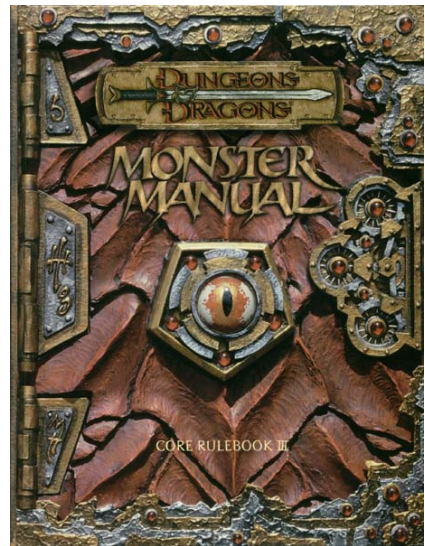
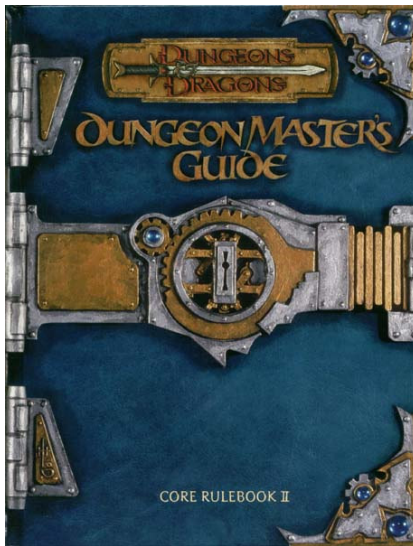
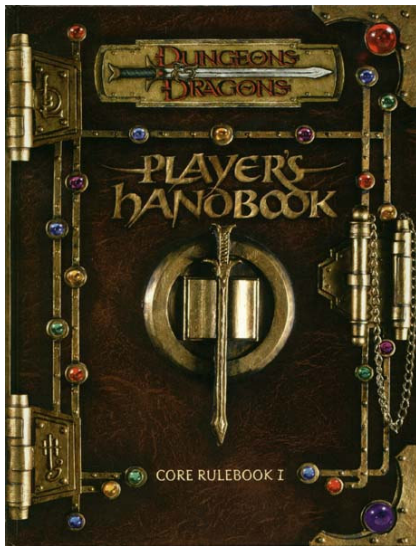
Gygax has also created 2 chess variants of chess: Fidchell and Dragon chess. The latter is a three-dimensional variant of chess played on three 8x12 boards stacked on top of each other. The top board represents the sky, the middle is the ground and the bottom is the underworld. The game pieces are inspired fantasy monsters from a D&D setting, including mage, paladin, thief, elemental, dwarf, unicorn and so on.

Advanced Dungeons & Dragons 2nd Edition

The AD&D rule system evolved into its 2nd edition in 1989. In my opinion the second edition of AD&D was overly complicated, yet not detailed nor well-balanced and took the fun out of gaming.

New Era with Dungeons & Dragons 3rd Edition and Open Gaming License

In 2000 Wizards of the Coast published **Dungeons & Dragons 3rd Edition**, which was practically a sequel to the 2nd edition of AD&D, but got a shorter name as the original D&D line had already been abandoned years ago. D&D 3rd edition is also often called as **d20 system** due to the fact that the basic rule system was released as **System Reference Document (SRD)** under the **Open Gaming License**. The d20 system took the role-playing world by storm and in just a few years it has almost killed the competition and many other role-playing systems have been transferred into d20 system. Gygax himself has published a couple of d20 based game books: **Gary Gygax Necropolis** (Necromancer Games 2002) and **Gary Gygax's Living Fantasy** (Troll Lord Games 2003). The d20 rule system has been used in many popular computer and video role-playing games including **Star Wars: Knights of the Old Republic** (BioWare/LucasArts 2003).



Personal Life

Gary Gygax married Gail Carpenter on 15th August 1987 and he is the father of six children and seven grandchildren.

He has received several awards related to gaming. He is the four-time winner of Gamer Day's "Best Games Inventor" (1979-1982).

Gygax is now in semi-retirement after almost suffering a heart attack due to incorrect medication. According to Gygax himself:

"I would like the world to remember me as the guy who really enjoyed playing games and sharing his knowledge and his fun pastimes with everybody else."

The importance of Gygax's and Arneson's work to computer and video games cannot be over-emphasized. Despite its short-comings D&D is the basis of almost all role-playing game systems used in electronic games.

References

- Gary Gygax: Player's Handbook (Advanced Dungeons & Dragons, 1st edition revised) TSR, Random House, ISBN: 0935696016
- Wikipedia entry on Gary Gygax
Accessed on 6th March 2006, available on http://en.wikipedia.org/wiki/Gary_Gygax
- Wikipedia entry on Tactical Studies Rules
Accessed on 6th March 2006, available on http://en.wikipedia.org/wiki/Tactical_Studies_Rules
- Allen Rausch: Gary Gygax Interview - Part I
Gamespy article 15th August 2004
Accessed on 6th March 2006, available on <http://pc.gamespy.com/articles/538/538817p1.html>
- Allen Rausch: Gary Gygax Interview - Part I
Gamespy article 16th August 2004
Accessed on 6th March 2006, available on <http://pc.gamespy.com/articles/538/538820p1.html>
- The History of TSR (1966-1999)
Accessed on 6th March 2006, available on http://www.wizards.com/dnd/DnDArchives_History.asp
- Pen & Paper: Gary Gygax: Roleplaying Game Credits
Accessed on 6th March 2006, available on <http://www.pen-paper.net/rpgdb.php?op=showcreator&creatorid=503>
- Wikipedia entry on Dungeons & Dragons
Accessed on 6th March 2006, available on http://en.wikipedia.org/wiki/Dungeons_&_Dragons
- Glenn Overby II: Fidchell by Gary Gygax
Accessed on 6th March 2006, available on <http://www.chessvariants.org/large.dir/fidchell.html>
- E Gary Gygax - Father of Role Play
Accessed on 6th March 2006, available on <http://www.bbc.co.uk/dna/h2g2/alabaster/A683688>
- Open Gaming Foundation
Accessed on 6th March 2006, available on <http://www.opengamingfoundation.org/>

Dave Arneson (1947-) – Co-Creator of Dungeons & Dragons

Dave Arneson is best known as the co-creator of Dungeons & Dragons, the first role-playing game. He is also creator of Blackmoor, the longest living role-playing campaign.

Role-playing Using Miniatures and Rules

David L. Arneson was born on first October 1947 in USA. Arneson became involved with war gaming when his parents bought him **Gettysburg** (Avalon Hill 1964). He liked it so much that he even talked his friends into learning it and formed his own player group in the Minneapolis area. Back then there was only about one new game per year introduced by Avalon Hill, so Arneson and his friends began to make their own games. According to Gamespy interview (19th August 2004):

“Around 1968 I got in touch with some gamers in the Twin Cities that were playing with military miniatures and thought that was interesting and exciting. I played games with them for a couple of years and we started to make our own battles. That ended up leading to something a little bit closer to true role-playing when we started to set objectives for different generals that weren't necessarily military in nature. At that point I guess we started role-playing.”

“We started setting different objectives for the players. It wasn't just about fighting; we started stealing things: bombs, guns, food supplies, that sort of thing. Players could negotiate with each other for who captured the goal, and then had to figure out how they were going to slip the products past a blockade and sell them on the black market.”



This can be considered as the first case of role-playing using miniatures and rules.

Arneson's Collaboration with Gygax

Arneson attended the second Gen Con gaming convention in 1970. There he met Gary Gyax, who was the main organizer of Gen Con. They both shared an interest in sailing ship games. Arneson had already some rules for doing sailing ship battles. Arneson and Gygax collaborated on a set of rules called published in 1971 by Guidon Games, Gygax's company.

Arneson's gaming group also began playing medieval battles using Chainmail, a rulebook written by Gary Gyax & Jeff Perren. Arneson quickly found the rules lacking:

“We had to change it almost after the first weekend. Combat in Chainmail is simply rolling two six-sided dice, and you either defeated the monster and killed it ... or it killed you. It didn't take too long for players to get attached to their characters, and they wanted something detailed which Chainmail didn't have. The initial Chainmail rules was a matrix. That was okay for a few different kinds of units, but by the second weekend we already had 20 or 30 different monsters, and the matrix was starting to fill up the loft”

“I adopted the rules I'd done earlier for a Civil War game called Ironclads that had hit points and armor class. It meant that players had a chance to live longer and do more. They didn't care that they had hit points to keep track of because they were just keeping track of little detailed records for their character and not trying to do it for an entire army. They didn't care if they could kill a monster in one blow, but they didn't want the monster to kill them in one blow.”

The resulting game, which featured hit points, armor class, character development with levels and experience points, was called **Blackmoor**, which forms the basis of current Dungeons & Dragons (D&D). Blackmoor was also a game setting, a game world, invented by Arneson.

Dungeon Crawls

The players were often adventuring in underground maze-like places filled with various monsters and treasure. These are called the *dungeon crawls*.

“Well, dungeon crawls were, I think, the easiest things to set up because all you had to do was draw a grid map and didn't have to worry about the great outdoors and setting up trees and stuff. People also couldn't go wandering off where you didn't have a map because it was solid rock.”

Arneson demonstrated Blackmoor and his rules to the Lake Geneva Tactical Studies Association, which later lead to the name **Tactical Studies Rules** (TSR). There Gygax got interested in making another game.

Dungeons & Dragons

Gygax and Arneson began collaborating via mail and phone. Arneson wanted the spell system to be point based, but the published role-book used a system inspired by the writings of Jack Vance, where each spell was erased from memory after its casting.

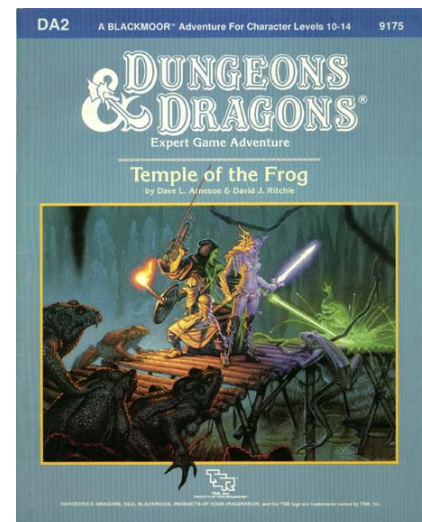
Both Gygax and Arneson wanted to publish the game, but Arneson could not afford to invest in the venture. Don Kay provided the money to publish D&D in 1974. The game sold 1000 copies in less than a year and started the role-playing game industry. Gygax has since said that D&D is mostly his creation and Arneson contributed little to the game. Arneson disagrees on this matter, calling himself the father of role-playing.

Blackmoor Campaign

Blackmoor was published in 1975, being the second supplement to D&D after Greyhawk, which was based on Gygax's own campaign. The original Blackmoor booklet added monsters, treasure and several options to the rules, including a hit location system, rules for handling diseases and two additional character classes: assassin (thief sub-class) and monk (cleric sub-class). It also contained the first-ever published role-playing game scenario, “**Temple of the Frog**”, but it didn't include any information on the setting itself. Temple of the Frog was later published by TSR Hobbies Inc. as a separate module book co-written by David J. Ritchie in 1986.

In 1976 Arneson moved to Lake Geneva, Wisconsin to work as Creative Director of TSR.

After a series of disagreements Arneson left TRS in late 1976.



Legal Cases against TSR

In 1977-1979 Gygax created Advanced Dungeons & Dragons (AD&D), which was a sort of 2nd edition of D&D. Instead of calling it D&D, Gygax called it AD&D to avoid paying royalties to Arneson for co-creating D&D. AD&D became a huge success and eventually it replaced D&D, but there were D&D products made and published till the late 1980s.

In 1979 Arneson filed a lawsuit against Gygax and TSR Hobbies Inc., because he was left out of the credits and without royalties in the later adapted version of D&D. This was followed by four other

lawsuits, which were finally resolved in 1981. The court documents are confidential and Arneson cannot talk about how the agreement was finally made.

Back to Working for TSR

Arneson was not allowed nor invited to do any D&D related work until 1984 when Gary Gygax became the president of TSR. Then Arneson briefly returned to Blackmoor and D&D. He made a series of Blackmoor modules with David Ritchie: **DA1 Adventures in Blackmoor**, **DA2 Temple of The Frog** and **DA3 City of the Gods**. **DA4 Duchy of Ten** was written by David Ritchie. The DA stands for Dave Arneson. When Gygax was replaced in the TSR management by Lorraine Williams, the fifth module of Blackmoor was cancelled and Arneson once again left the company.

After leaving TSR Arneson, together with co-author Richard L. Snider, wrote **Adventures in Fantasy** (Excalibur 1979), a fantasy role-playing game, which can be seen as Arneson's version of D&D, as he would have envisioned it to be.

Adventure games

In the early 1980s Arneson founded his own game company, **Adventure Games**. He produced two miniature games Johnny Red and Harpoon in the mid 1980s. Even though Adventure Games was a profitable business Arneson found running the business to be too much work and sold the company to Flying Buffalo, an Arizona-based role-playing game company, which had invented computer moderated play-by-mail-games like **Starweb** (Flying Buffalo 1976) and **Battle Plan**. Starweb was designed by Rick Loomis and is still played 30 years on.

4D Interactive Systems and Arneson as a Game Programmer

In 1979 he founded 4D Interactive Systems, a computer company based in Minnesota. 3D Interactive System is still in business at the time of writing. Arneson learned to program, but in an interview he confesses that he hated programming. He programmed a couple of computer games and has been involved in the creation of many computer multimedia products including **Battle of Britain** (Discovery Games 1980), **Malta Strike** (Discovery Games 1980), **Bard's Tale IV** (Electronic Arts 1991) and **Storm Clouds Over Dixie** (Quanta Press).

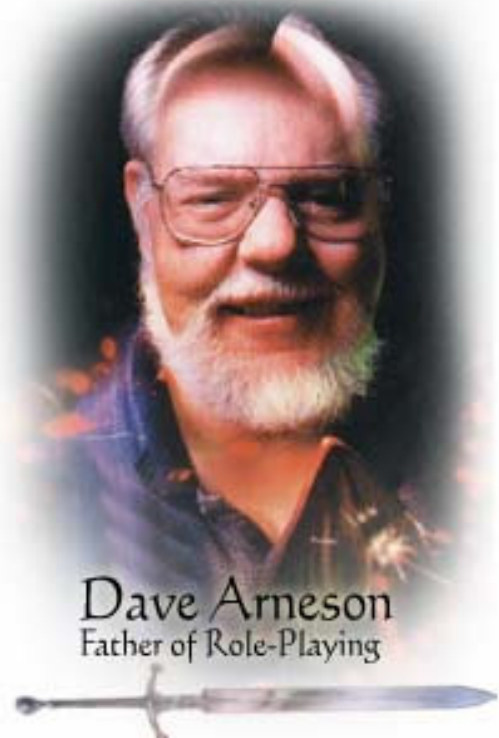
Current Life as an Educator

He soon switched to consulting about computer games and then to teaching special education children and continuing his own education.

In 2001 Arneson suffered a stroke followed by a second one in 2002. He underwent triple bypass surgery in 2003 and he has recovered from this well. He and Gygax still occasionally communicate (sending a "get well" card after the stroke).

Arneson appeared in the film *Dungeons & Dragons* (Courtney Solomon 2000) as one of the mages, which threw fireballs at the dragon.

Currently Dave Arneson is teaching documentation and computer game design at the Full Sail University of Orlando Florida. His title is professor and he is still an avid player of both role-playing and computer games.



“Oh sure. I play a lot of computer games. In fact, you can get an A in my course if you can beat me in Age of Empires 2.”

Together with Dustin Clingman Arneson founded **Zeitgeist Games** to produce an updated, d20 System version of the Blackmoor setting. Blackmoor is currently the longest-living role-playing campaign, which is still played 39 years after its introduction.

References

- Personal Email Correspondence Between Dave Arneson and Petri Kuittinen during January 2006
- Wikipedia entry on Dave Arneson
Accessed on 7th March 2006, available on http://en.wikipedia.org/wiki/Dave_Arneson
- Wikipedia entry on Blackmoor
Accessed on 7th March 2006, available on <http://en.wikipedia.org/wiki/Blackmoor>
- Castle Blackmoor: Home Page of Dave Arneson - The Father of Role-Playing
Accessed on 7th March 2006, available on <http://www.jovianclouds.com/blackmoor/>
- Andrew S. Bub: Dave Arneson Interview
GameSpy 11th August 2002
Accessed on 7th March 2006, available on <http://archive.gamespy.com/articles/august02/gencon/arneson/>
- Allen Rausch: Dave Arneson Interview
GameSpy 19th August 2004
Accessed on 7th March 2006, available on <http://pc.gamespy.com/articles/540/540395p1.html>
- Aardy R. DeVarque (compiler): Rec.games.frp.dnd FAQ
Accessed on 7th March 2006, available on <http://www.faqs.org/faqs/games/roleplay/dnd/part3/>
- Astimus: A History of Role-Playing
Accessed on 7th March 2006, available on <http://ptgptb.org/0002/history2.html>
- Dave Arneson Series (DA1-DA4)
Accessed on 7th March 2006, available on <http://www.acaeum.com/DDIndexes/ModPages/DA.html>
- Pegasus: An Interview with Dave Arneson
Accessed on 7th March 2006, available on http://www.judgesguild.net/guildhall/pegasus/pegasus_01/interview.shtml
- Temple of the Frog
Accessed on 7th March 2006, available on <http://www.mystara.org/DND/DA2/>
- 4D Interactive Systems, Inc. Home Page
Accessed on 7th March 2006, available on <http://www.4dintsys.com/>
- The Giant List of Classic Game Programmers
Accessed on 7th March 2006, available on <http://www.contrib.andrew.cmu.edu/usr/md4l/gplist.html>

Richard Garriot (1961-) – Creator of Ultima

Richard Garriot or "Lord British" as many people know him, is the creative mind behind the Ultima series of role-playing games. He is also the founder of Origin Systems.

Early Years and Akalabeth

The son of Skylab and Spacelab astronaut Owen K. Garriot, Richard Allen Garret was born on 4th July 1961 in Cambridge, England. Richard Garriott was raised in Houston Texas, USA. He got the nickname “Lord British” from fellow students in school because of his proper use of the English language and his British accent. In high school he got interested in computers and taught himself to program. He programmed lots of role-playing games.

Akalabeth

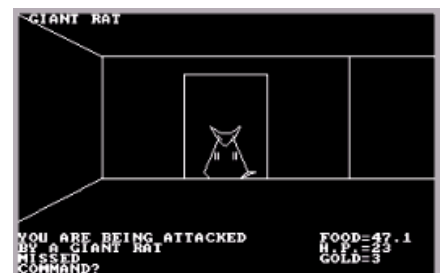
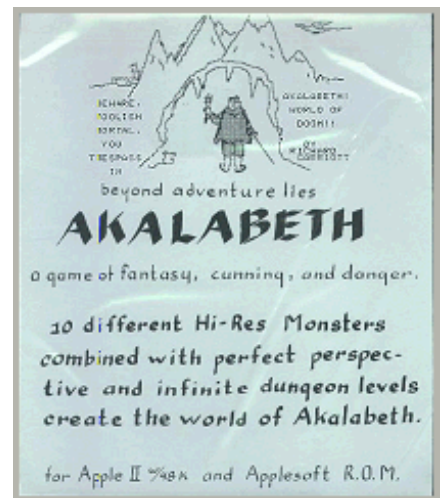
One of these games was originally called D&D28b, because it was his 28th Dungeons & Dragon’s inspired game. He later named the game **Akalabeth**, after Akallabêth, featured in J.R.R. Tolkien’s **The Silmarillion**. Akalabeth is considered to be Ultima: part 0.

Even though written in BASIC, it was a pretty remarkable game for its era, featuring 3D line graphics inside dungeons and a scrolling map, where the player could visit dungeons, town’s and Lord British’s castle, who gave quests to complete. At the same time he was working in the Computer Land store. The game impressed the shop owner so much he convinced Garriott to self-publish it. Garriott spent 200 dollars to buy 200 Ziploc bags, and make a coversheet and manuals for the game. Manufacturing disks would have been too expensive for him, so he made a cassette copy of the game when needed. He created 16 copies and ended up selling only 15 of them. One of the copies found its way to a software company called California Pacific. They flew Garriott over to California to sign contract for the publishing rights. The game was released on 5 ¼” floppy disks and sold an amazing 30 000 copies, each earning \$5 for Garriot, who was still at college at that time. Garriot was not happy with the original art design of the cover, which he designed himself. He asked Denis Loubet to make to new cover for the game. Denis ended up making the artwork for every Ultima game up till Ultima IX.

Akalabeth was published, according to Garriot himself (and Origin Systems), in summer 1979, but the first release is marked "© Richard Garriott 1980".

Ultima

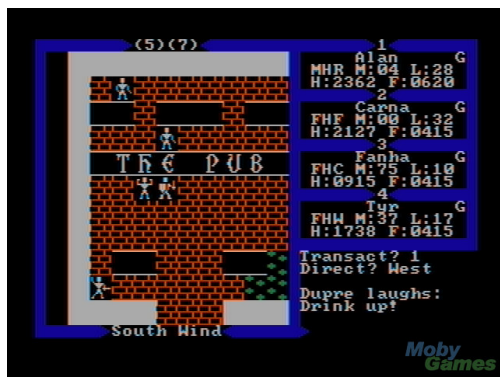
In autumn 1980 Garriot went to study at the University of Texas at Austin. There he joined the school’s fencing team and the Society for Creative Anachronism (SCA), which is a non-profit organization devoted to studying and recreating the middle ages and renaissance life. In autumn 1980 Garriott and his friend Ken Arnold began working on another game called Ultimatum. But



they soon noticed a board game with the same name already existed so they shortened the title to Ultima. The game was written mainly in BASIC, but it featured a tile-based graphics engine written by Arnold. The game was published by California Pacific in 1981. The game was an even bigger hit than the Akalabeth and it was entirely reprogrammed and released in 1986 as **Ultima: The First age of Darkness** (Origin Systems 1986). The new faster version with better graphics and slightly improved game-play sold even better and the game was also ported to other systems including Atari 8-bit computers.

Ultima II

Garriot went on to program a sequel called **Ultima II: Revenge of the Enchantress**, which featured several improvements including separate town and world maps and a time game for traveling. The game was published in 1982 by Sierra On-Line Inc, but Richard Garriott wasn't satisfied with them. Together with his brother Robert Garriot, father Owen Garriot and Chuck "Chuckles" Bueche Richard Garriot founded **Origin Systems** in 1983.

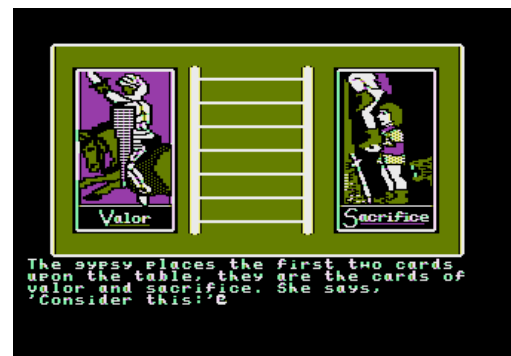


Origin Systems and Ultima III

The first game to be published by Origin System was **Ultima III: Exodus** (Origin Systems 1983). Many people consider this as the best game in the Ultima series. Garriot was the project director for the game, marking his move slowly towards directing and producer-type jobs from programming game design and graphics, which he produced all by himself for his first games. The game featured animated characters. Instead of controlling just one character, like in earlier computer role-playing games, the player controlled a party of several characters. The movement on terrain happened on a map and turn-based combat happened on a separate battle screen, a system copied to almost every console role-playing game. Ultima I had randomly generated dungeons, which were different in every play. Ultima II was considered to have static, but poorly designed dungeons, which were mostly irrelevant to the plot. In Ultima III almost all the dungeons were tightly tied to the plot. The game was a big hit, later ported from Apple II to numerous platforms including Amiga, Atari 800, Atari ST, Commodore 64, PC, Macintosh, MSX and Nintendo Entertainment Systems.

Ultima IV

Ultima IV: Quest of the Avatar (Origin Systems 1985) introduced a new system for character creation. The character generation was statistic-based in the earlier Ultima games and practically almost all computer role-playing games. In Ultima IV the player chose the character type by answering a series of ethical questions, affecting 8 different virtues. The virtue with the highest rank determined the character class e.g. having highest ranks in



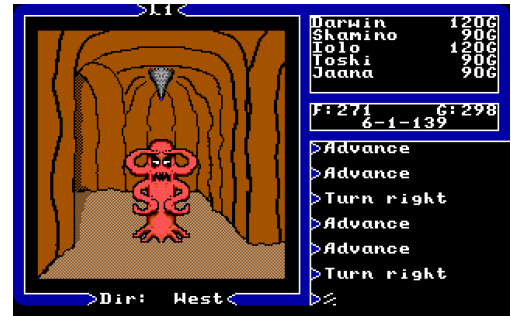
compassion made the character bard, honor made a paladin etc. Ultima IV was the first Ultima game to have a real conversation system, where players could interact with them, instead of getting just one and same canned line of text from them. Ultima IV was also the game in the series which introduced the world of Britannia in full.

Autoduel

In 1985 Origin Systems published a computer role-playing game called **Autoduel**, which was based on the Steve Jackson game series Car Wars and GURPS Autoduel handbook. The game was designed and programmed by Garriot himself.

Ultima V

In 1988 Origin Systems published **Ultima V: Warriors of Destiny**, which was the last Ultima game to be made for Apple II. The limitations of the hardware were already visible in the previous part. The game had different times of day from sunrise to sunset with non-player characters having different daily routines. The 8-virtue system was taken even further in Ultima V into to point of fundamentalism and moral absolutism.



Ultima: Martian Dreams

In 1991 Origin Systems published a role-playing game **Ultima: Martian Dreams**. It is not considered an official part of the game series as it is not set in Britannia. It featured many actual figures of history like Marie Curie, Buffalo Bill and Rasputin.

Ultima VII

Ultima VII was released as two parts: **Ultima VII: The Black Gate** (1992) and **Ultima VII: Serpent Isle** (1993). The games were originally for PC and changed the turn-based game-play into real-time combat.



Ultima VIII

Electronic Arts purchased Origins System in 1992. Richard Garriott still remained there to develop new games.

Ultima VIII: Pagan (Origin Systems 1994) was made for MSDOS and IBM PC. It featured isometric 3D graphics, but in most other ways the game was a disappointment to the fans of the series. The game had a much smaller world than the previous parts. It has no day and night cycle. Instead of controlling a party of characters, the game went back to control just one character and included platform-game-alike jumping. The game was also infested with numerous bugs. The expansion pack called **Ultima VII: The Lost of Vale** was cancelled due to the low success of the game.



Ultima IX and Ultima Online

Garriott went on to develop **Ultima IX**, but took a break from it to help the development of **Ultima Online** (UO), a massively multi-player online role-playing game set in the world of Britannia. It was one of the first commercial massively multi-player online games. Nobody at Electronic Arts was thinking the game would be any sort of hit, expecting it to sell no more than 50 000 units. The game ended up selling 50 000 in the first weekend of its launch on 30th September, 1997. This happened despite the fact that the launching of the game went badly, almost causing the servers to crash, because of too many players being online simultaneously. From the very beginning the game suffered from many problems. The biggest of them was player killing. Killing another player meant that character lost all the items it was carrying e.g. the only key to its house, meaning that the player could no longer access his own home. These bugs or features have been fixed in later releases and updates of Ultima Online. At the peak of its success in summer 2003, UO had about 250 000 subscribers, which since then have started to slowly decline.



The Ultima IX was expected to be a huge hit, but the project got delayed badly and finally, 5 years later, Origin Systems published **Ultima IX: Ascension** (Origin Systems 1999) for Windows PCs. Originally the game was supposed to use isometric 3D graphics, but it was decided to switch into full 3D. The game got a bad reputation as the first released version was very buggy and had high hardware requirements. Also the game's story was not well-linked to previous Ultima games. The poor success of the game marked the end of the Ultima saga.

Other Games by Origin Systems

At the same time Origin Systems published other games, the most famous and successful was the Wing Commander series of space combat simulation games. Wing Commander (Origin Systems 1990) had 3 sequels all made originally for IBM PC. **Wing Commander IV: The Price of Freedom** (Origin Systems/Electronic Arts 1996) featured lots of cut scenes with real actors like Mark Hamill, John Rhys-Davis and Malcolm McDowell. It was also one of the most expensive games of its time, costing about \$12 million to produce.



Screenshot from Wing Commader IV

Destination Games

In March 2000 Garriott left Origin Systems because the management refused to continue his costly secret project X. He and his brother Robert Garriott and Starr Long, one of the producers of Ultima Online, founded **Destination Games** Inc in April 2000. In E3 Expo 17th May 2001 Garriot announced a partnership with Korean game publishers NCSoft. NCSoft bought Destination games and renamed it NCsoft Austin. The financial troubles of Origin Systems continued. Electronics Arts kept the studio alive to support Ultima Online, but disbanded it in February 2004.

Garriott now works in NCsoft Austin as executive producer making a massively multiplayer online game, called **Tabula Rasa**, which is supposed to mix first-person-shooter and role-playing game. "We Create Worlds" was the slogan of Origin Systems. The company was famous for making a consistent game world with many details. Garriott still aspires to do the same by creating a new game, which he hopes to be as popular as the world of Britannia.

Eccentric Multi-Millionaire

Garriott is a multi-millionaire known for his eccentric hobbies. He has participated in trips to Antarctica and to the bottom of the sea in a research submarine. His collection of things includes antique weapons and an original moon buggy. He is also famous for organizing legendary Haunted House Halloween parties. Every two years Garriott has invited guests to his former house in Austin, Texas. The house features secret doors and dungeons.

In the late 1990s Garriott had built his own castle on a 25 000 square foot estate. The castle is located near a cliff and features a moat, dungeons and a secret underground passage. The cost of the building is rumored to be about \$25 million.

According to the Wikipedia entry on Garriot, he became the ninth inductee into the Academy of Interactive Arts and Sciences' Hall of Fame in 2006, although this is not mentioned in the webpage of interactive Arts and Sciences.



References

- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition) (pages 118-123)
Osborne 2004, ISBN: 0-07-223172-6
- Brad King & John Borland: Dungeons and Dreamers: The Rise of Computer Game Culture from Geek to Chic
McGraw-Hill Osborne Media 2003, ISBN: 0072228881
- Wikipedia entry on Richard Garriot
Accessed on 6th March 2006, available on:
http://en.wikipedia.org/wiki/Richard_Garriott
- MobyGames entry on Richard Garriot
Accessed on 6th March 2006, available on:
<http://www.mobygames.com/developer/sheet/view/developerId,483/>
- Wikipedia entry on Origin Systems
Accessed on 6th March 2006, available on:
http://en.wikipedia.org/wiki/Origin_Systems
- Wikipedia entry on Ultima Series
Accessed on 6th March 2006, available on:
<http://en.wikipedia.org/wiki/Ultima>
- Allen Rausch: From Origin to Destination (GameSpy article 7th May 2004)
Accessed on 6th March 2006, available on:
<http://pc.gamespy.com/pc/tabula-rasa/512497p1.html>

Ken Williams (1954-) and Roberta Williams (1953-) - Founders of Sierra On-Line and Creators of Graphics Adventure Game

Ken Williams is a computer game programmer who started On-Line System in 1979. His wife, Roberta Williams, liked Colossal Cave Adventure and started to design graphical adventure games with Ken doing the technical part. On-Line Systems later became Sierra Online and then Sierra Entertainment. Perhaps the most famous of Williams' games is the King's Quest series.



Early Years and Romance

Ken Williams was born on 30th October 1954. Roberta Heuer Williams was born on 16th February 1953. Ken Williams and Roberta Heuer met when Ken was 16. Ken was dating another girl, but Roberta looked more cute to him than his current date, so he switched. Roberta Williams was not impressed (dialogue from Levy's book Hackers):

"He was cute, but I thought he acted kind of dumb. He was shy, but he would go overboard, acting too aggressive. He carried cigarettes in his pocket, but didn't smoke. He asked to go steady the first week"

Roberta was also seeing another guy, who lived upstate. Ken forced Roberta to choose between them, pushing into a committed relationship with him.

"He was talking about physics", Roberta recalled, "I figured he really was a bright guy. All the boyfriends I'd had before were rather dumb. Ken was talking about real things, responsibility."
"I didn't want to be alone", Ken recalled.

Roberta stopped seeing the other guy. Ken and Roberta got married on 4th November 1972, when Roberta was 19 and Ken had just turned 18 just 5 days before. Their first son D.J was born in 1973.

Ken Williams majored in physics in college, but he only completed the first couple of years. Roberta had become pregnant and in order to support his family Ken had to find a job fast. He dropped out of college and went to a trade school called Control Data Institute. There he did a 9 month programming school. After that school he got a job as a computer operator on a mainframe computer. He was not a great programmer, but he had the talent to convince other people he knew more than he actually did. He claimed to know programming languages, he had barely heard of. Then later he rushed home to study everything about the subject. He went from one company to another and quickly rose in status and got better pay rolls. But none of this was enough. When Ken came home Roberta asked him: *"Wouldn't it be nicer to earn two hundred dollars more?"*



By the time Roberta was pregnant with their second son Chris (born in 1979), Ken started to have dreams of having so much money he could retire at the age of 30. Ken Williams described his dominant characteristic to be greed.

Ken got a job as systems programmer at Bekins Moving and Storage. There he got hooked on a thing, which hackers called "pure programming". He started to experiment with several programming languages, which had nothing to do with his job. He actually began to like programming.

His next job was at Informatics. There he met lots of talented people and soon noticed that he was among one of the weakest in the team of super programmers. Ken's boss at Informatics was Dick Sunderland, a former FORTRAN programmer. Ken disliked his strict management style with lots of bureaucracy and schedules. Ken was always asking for more and one day when he suggested he could become the head of the programming group Sunderland's reply to Ken Williams was: "You have no talent for management".

Birth of On-Line Systems and Mystery House

Ken was doing lots of moon-lighting and finally in 1979 he left Informatics and became an independent consultant.

Ken's brother Larry Williams had bought an Apple II. It was a toy compared to the huge mainframes Ken was used to at Informatics and his other jobs, but it had the capability to do interactive programs and real-time graphics, instead of the batch processing and text output of the big mainframes. Ken spent his last pennies to buy an Apple II for himself as well. He began to envision making a FORTRAN compiler for the Apple, as nobody had done it before.

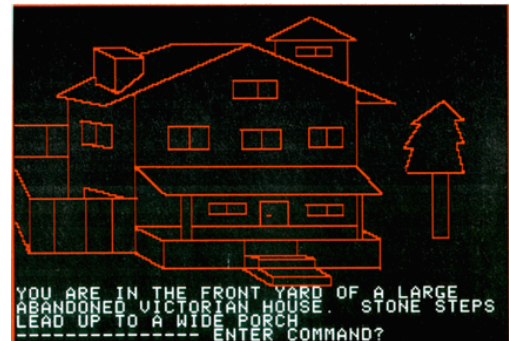
Roberta Williams had been timid most of her life. She often dreamed to be somebody else and she had a knack of telling stories to people around her. She has just expected Ken to provide a living for the family and she was so shy she "could hardly make a phone call".

One night Ken showed Roberta a game, which was running on a big main frame. That game was the **Colossal Cave Adventure**, the world's first text adventure game, originally made by Don Woods in

1972. Roberta fell in love with the game. Ken was amazed to see his wife, who previously could not stand computers, spending so much time in front of a computer terminal and he could not get her away from it.

Inspired by the Colossal Cave Adventure and Agatha Christie's **Ten Little Indians** and the game **CLUE**, Roberta became to write a story called **Mystery House** (On-Line Systems 1980). Roberta showed piles of papers containing her work to her husband. Roberta's idea of an adventure game was set in an old Victorian house in which the people were killed one by one. She explained a couple of the game puzzles and told about a secret passage route to her husband. Ken encouraged her to continue, but said it needed something extra to make it sell. The extra missing thing was graphics. The previous adventure games had relied on text only. A device called **VersaWriter** had just come out for the Apple II. It was a tablet, which allowed the user to draw images, which appeared on the computer screen. It was crude and cost two hundred dollars. The Williams decided to take a risk. Roberta started to draw images for the game and Ken Williams figured a clever way to store 70 pictures onto one floppy disk. Instead of storing the bitmap data of the images, he stored the assembly language instructions to draw the picture. Ken also programmed the logic for the game.

Ken scrapped his FORTRAN project. He tried to sell **Mystery House** to **Programma**, a software distribution company. The game had crude graphics, resembling stick men, but nevertheless it was something new. It was the first graphical adventure game. The people at Programma loved it and offered Ken a 25% royalty on the \$12 wholesale price. They assured the game would sell 500 copies a month for six months, which would earn Williams \$9000, almost twice as much as Ken had been promised for the FORTRAN program. Ken and Roberta refused the offer and started to market and sell the game themselves. They named their company **On-line Systems**.



They ran a magazine ad in a small magazine called MICRO, advertising **Mystery House** or "Hi-Res Adventure #1" for \$24.95. The advertisement had cost them \$200, a price they were reluctant to pay at first. But then their phone started ringing constantly with people wanting to buy their game. They made \$11 000 in May 1980. In June they made \$20 000 and in July they made \$30 000. The game ended selling about 80 000 copies. Many people called them to ask for help with the game. Roberta, the designer of the game, answered all their questions by giving them hints, instead of straight answers.

At the time Ken had been working full time at Financial Decisions. He worked on weekends on an Apple II to make a new machine-language system for Roberta's next game. Roberta and Ken had dreamt of living in the woods, far from the noisy city and its pollution, for a long time. The money they made allowed them to make the big change. They bought the first country house they looked at, situated at Coarsegold, near Oakhurst, California. In 1982 they changed the name of the company to **Sierra On-Line**.

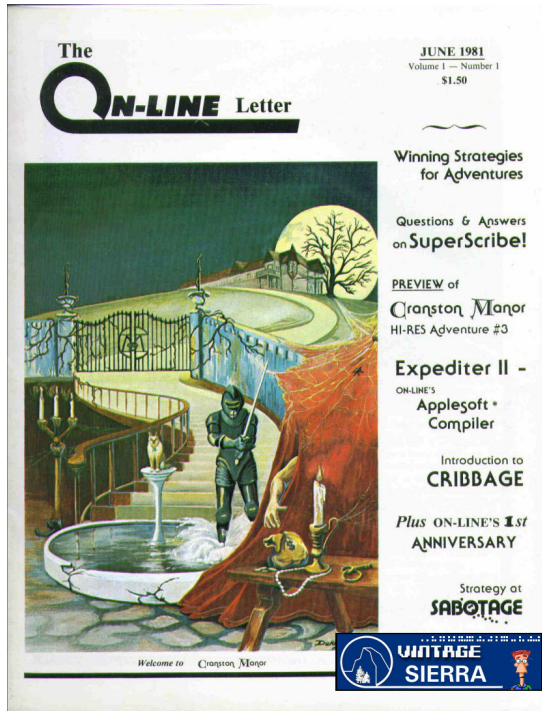
Wizard and the Princess

Roberta's next game was called **Wizard and the Princess** (On-Line Systems 1980) or "Hi-Red Adventure #2". It was twice as long as **Mystery House** and ran faster thanks to Ken's improved program logic. He had developed an assembly language interpreter to write adventure games. He

called it Adventure Development Language (ADL). The game featured filled color graphics and it used dithering to create the illusion of more colors. The game had only one puzzle. In order to rescue princess Priscilla of Serenia from Wizard Harlin, one had to kill a snake using a rock. The problem was that you had to pick the right rock, and there were lots of rocks, and they all looked the same. If you picked the wrong rock, you got bitten by a scorpion and died. A lot of players got really frustrated with this problem and eventually On-Line began shipping the game with the solution to the problem.

Wizard and the Princess ended up selling 60 000 copies for \$32.95 each.

InterAction Magazine



One of Ken Williams' early jobs was at Fredericks of Hollywood, a well-known mortuary, which pre-sold burials via direct marketing. There he learned the power of direct mail. He had also been selling newspapers from door to door. He set up a sales record. He really understood how to make people buy things.

He started to keep a list of his customers and regularly sent them mail. In June 1981 On-Line System published their first customer magazine called **The On-Line Letter**. It contained hints to On-Line games and previews of up-coming games. In spring 1989 the magazine was renamed as **Sierra Newsletter**. In 1991 the magazine's name was changed again to **InterAction**.

In an Adventure-Treff interview Ken Williams commented:

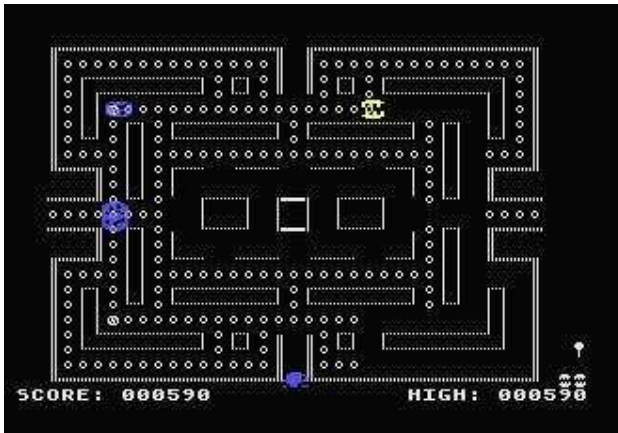
I had a governing rule for Sierra that said "It's much cheaper to sell a product to an existing customer than to a new customer." If you do great products, a certain number of customers find the product (or read a review) and buy it. Once they are "in the family" (a very familiar phrase to Sierra employees) all we have to do is tell them about new products AND NEVER BURN THEM. The cost to reacquire a customer after you burn them is off the top of the charts. I focused the vast majority of our marketing budget on direct communications to existing customers. Look at InterAction magazine to understand the real Sierra. We were a direct mail machine that sold through retail distribution."

Summer Camp and Jawbreaker

On-Line Systems began to expand rapidly. They had to hire much more people to help them. Ken began to look for good hacker type programmers, who knew assembly language well, to work for On-Line. One of them was John Harris. Ken met John Harris, who was around 19 then, and talked him into working for him, promising him a 30 percent royalty and paying him \$700 and free accommodation. Ken Williams had bought several houses to accommodate his programmers. Harris' first game was a maze game, very similar to Pac-Man, which was the best-selling game of its era. Ken Williams also noted that and said to Harris: *"It looks too much like Pac-Man. You have wasted your time, John Harris"*. He suggested Harris change the game. John Harris reprogrammed the graphics so that the ghosts, who were chasing after Pac-Man were wearing tiny moustaches and sun glasses. This still was not enough. Ken's brother John Williams suggested replacing the ghosts with happy faces. Pac-Man was replaced with clicking teeth and the dots with lifesavers. After clearing the entire maze a toothbrush would appear and brush the teeth. The resulting game was called **Jawbreaker** (On-Line Systems 1982) for the Atari 800 series of home computers. It had beautiful music, tight controls and ran smoothly, instead of the flickering Atari 2600 version of Pac-Man (Atari 1981). The game became an instant hit. Atari sued On-Line Systems and for a while it looked like Atari would close down On-Line Systems. The conflict went to court and the judge's decision was that, even though Pac-Man and Jawbreaker were similar games, they had clearly distinct looks and also that ideas are not copyrightable. Thus On-Line could continue selling and marketing the game.



Pictures: (left) Jawbreaker Atari 800 version, Jawbreaker Atari VCS/2600 version



The atmosphere at One-Line was very loose.

People combined work and partying and free-time in the same premises, with the company manager Ken Williams joined the fun himself. The workers of On-Line began to call the company headquarters *"summer camp"*.

Harris' next game was a near-perfect Atari 800 port of an arcade action game called **Frogger** (Sega 1981). Harris had almost finished the game, but then the disks containing the game were stolen in a trade show. Harris was devastated, the disks not only contained the game, but also the tools he had used to develop it and his entire software library. He could not do any programming for a couple of months and Ken Williams started to lose his patience with him. Eventually Harris remade the game **Frogger** (On-Line Systems/Parker Brothers 1982), but Ken's trust of him was exhausted and he understood the company could no longer be run in such a fashion. He needed someone with more

professional management skills and could not just rely on star hacker programmers, with their peculiar habits. He hired his former boss Dick Sunderland to lead the company. Things began to change. The relaxed atmosphere was transformed into a more professional and serious company. The summer camp was over.

Steven Levy's **Hackers** book, from where many of these facts are taken, gives a very interesting close-look at the early years of On-Line. It gives long and lengthy descriptions of how Ken Williams tried to keep his super-star programmer John Harris by arranging dates, and an even a paid woman, for him (which Harris refused). In Halcyon Days interview Harris however disputes many of these facts:

"Levy made it sound like I was a walking hormone, but I really had no desire for casual sex. My desires at the time were focused on finding a girlfriend to share life's experiences with, talk to, and just have fun. Perhaps it is this major difference from the norm that made it so difficult for Ken Williams and Steve Levy to understand me. Steve Levy knew the truth about all of this, and about how much it bothered me, but for some reason he either didn't believe it, or chose to ignore it, and decided to write his own version which he presumably felt had more journalistic appeal."

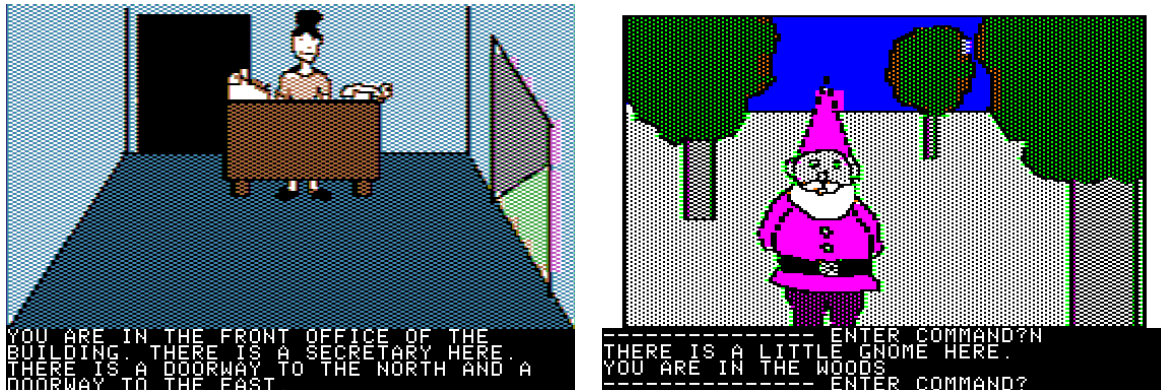
One of the biggest causes for the rift that formed between Ken Williams and me was his continuous attempts, and the broadcasts thereof, to try and get me "laid." I had to laugh when I read a quote from Ken Williams, claiming he was "an expert on John Harris and his emotional problems." The preceding sentence was, "John Harris wants you to go drinking with him, get on the phone, go to Club Med, get him laid." Well let's see, I don't drink, Club Med was Ken's idea, and I've already covered the getting laid part."

Levy mangled what was a very special event for me--the beginning of the relationship with my wife. We had been friends in a science fiction club in San Diego since we were fifteen, but had since both moved away. We were both visiting San Diego the same weekend, right between our birthdays, which are seventeen days apart, and we both showed up at a meeting of that science fiction club. I asked her out to what I thought at the time was a fairly innocent double birthday celebration and I found out later that I bore a striking resemblance to Steve Martin asking out Bernadette Peters in "The Jerk." We grew very close, very quickly, designed custom engagement rings for each of us--she gave me one too--and were married a year later."

Levy's book mentions Harris showing up at Williams' house-warming party with her girlfriend wearing a large diamond ring. Harris' comment about it: *"And for the record, the largest stone on my wife's "large diamond engagement ring" is a sapphire weighing .08 carats. This fact produced an amusing remark from an unknown bystander who happened to overhear a conversation about these very aspects of Hackers. He took one look at her ring, and commented, "Lady, if you married him for his money, you got screwed."*

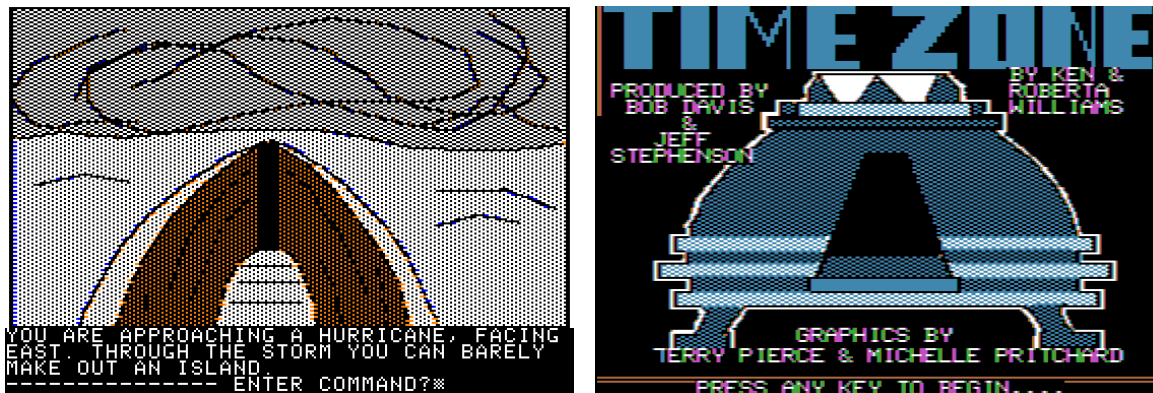
Parker Brothers wanted to buy the rights to the Frogger game to convert it to cartridge. There was a copyright dispute. Ken offered Harris 20 percent of a \$20 000 buy-out. That was not enough for John Harris. Ken Williams yelled at him: *"Get out of my office, John Harris. You're wasting my time"*. Ken Williams understood that his company needed reliable implementers instead of superstar programmers with emotional problems.

More Early Adventures



Screenshot of Mission: Asteroids (left) and Adventure in Serenia (right)

After **Wizard and the Princess** Ken and Roberta Williams did **Mission: Asteroids** (On-Line Systems 1980) and **Adventure in Serenia** (On-Line Systems 1981), **Ulysses and the Golden Fleece** (Sierra On-Line 1981) and **Time Zone** (On-Line 1981). They were all adventure games with color graphics.



Screenshots from Ulysses and the Golden Fleece (left) and Time Zone (right)

King's Quest

In early 1980 Online also produced lots of cartridge games for Atari, Vic 20, and Colecovision. The US video game industry collapsed in 1983 and Sierra lost money with the cartridge-based games, which were made at the expense of their graphical adventure games made for computers. They had already established a good relationship with IBM. In 1983, when IBM was making **PCjr**, they approached Sierra to ask if they could do a game to demonstrate the 16-color graphical capabilities of the new CGA-graphics hardware of the PCjr.

With a team of 6 programmers and development cost of \$700 000 Roberta Williams designed a game, which had colorful graphics not seen in computer games before. They used multi-player layers (like in Disney animated films) to create an illusion of three-dimensionality. In the game the player controlled Sir Graham, a brave knight, who is sent by the king on a quest to retrieve three treasures stolen by deception and stealth. The game marked a big change in the graphics. In the

earlier games Roberta had utilized first person perspective - in other words the player was seeing what his character would see through his own eyes. But **King's Quest** used 3rd-person perspective where the player would see his/her avatar, the player character on the screen. This same system was used in later Sierra games.

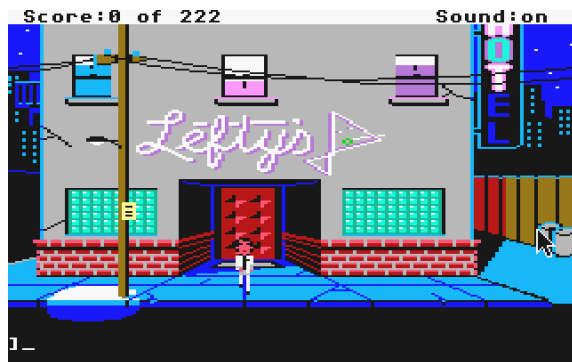
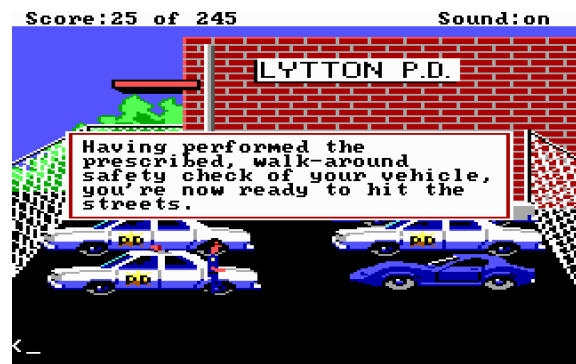
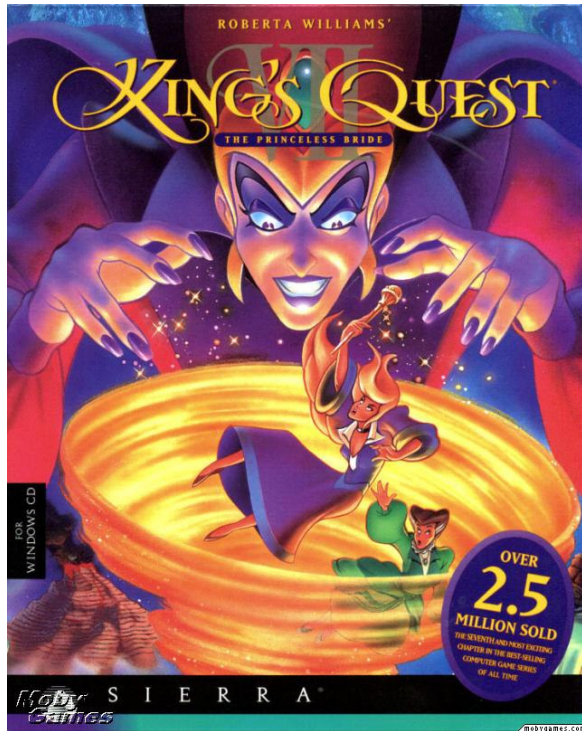
The game was a phenomenal success, selling over 2.7 million copies. 8 sequels were made, most of them designed by Roberta (and partly co-programmed by Ken Williams):

- **King's Quest** (Sierra On-Line 1984)
- **King's Quest II: Romancing the Throne** (Sierra On-Line 1985)
- **King's Quest III: To Heir is Human** (Sierra On-Line 1986)
- **King's Quest IV: The Perils of Rosella** (Sierra On-Line 1988)
- **King's Quest V: Absence Makes the Heart Go Yonder** (Sierra On-Line 1990)
- **King's Quest VI: Heir Today, Gone Tomorrow** (Sierra On-Line 1992)
- **King's Quest VII: the Princeless Bride** (Sierra On-Line 1994)

The game engine used in King Quest and the basic structure of the game was used in many other game series of graphical adventure games made by Sierra, including the **Police Quest** and **Space Quest**-series. Ken Williams was involved in the production of many of these games.



Screenshots from King's Quest I to VII



Screenshots from Space Quest, Police Quest and Leisure Suit Larry (bottom row)

Cover Photos



Roberta Williams is featured in a couple of cover pictures of the Sierra game packages. The earliest of them is **Softporn Adventure!** (On-Line Systems 1981), an adult-themed adventure designed by Chuck Benton. Softporn Adventure is the early influence for **Leisure Suit Larry** (Sierra On Line 1987-)-series of games, designed by Al Lowe. Ken Williams came up with the idea for the cover photo of Softporn adventure. He asked his wife and a couple of female employees of Sierra to pose nude for the photo, with the private parts of their bodies hidden by the water in a hot tub. Everybody agreed and the famous picture was made on the same evening.

Later Roberta appeared on the cover of **Roberta Williams' Mixed-Up Mother Goose** (Sierra On-Line 1987). It was a Sierra-style adventure game for children, based on various classic nursery rhymes, like Humpty Dumpty. The rhymes have gotten mixed and the player's task is to find the missing pieces and put them back into order.

Phantasmagoria

Roberta Williams had always loved horror films and thrillers. She wanted to make a computer game, which would be as scary as the best horror films. The game used real actors shot against a blue-screen background, a technique Sierra On-Line had used in an earlier game called **Gabriel Knight: Sins of the Fathers** (Sierra On-Line 1993). The blue screen background was carefully removed from the real-action video footage and replaced with rendered 3D backgrounds. The script for the game was about 550 pages.



Phantasmagoria (Sierra On-Line 1997) shipped on 7 CDROM disks, being the largest PC game of its time. The graphical gore of the game caused great controversy and it ended up being banned by various retailers in Australia. *"Originally it had nudity in it, too. But in the end we chickened out and removed it"*, Ken Williams explained.

Current Life

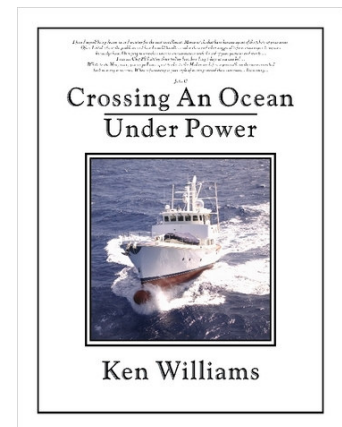
Ken and Roberta Williams sold Sierra On-Line in 1996 to a subscription based shopping company called **CUC International**. The company has had some rough times after Williams' departure. Both Walter Forbes, CUC's CEO and Kirk Shelton, CUC's president, were indicted on criminal charges. Kirk was sentenced to 10 years in prison and a \$3.27 million penalty.

In 1998 the original Oakhurst office was renamed as **Yosemite Entertainment**. On 22nd February 1991 Yosemite Entertainment was shut down and many people lost their jobs, in a region which could offer them no other jobs. In 2002 Sierra On-Line was renamed as **Sierra Entertainment**.

Ken and Roberta are still married, but no longer actively making games. Instead they have been enjoying their lives, playing golf and making long sea voyages. They have bought a house in Mexico and are spending half of the year there and half in Seattle.

After 18 years at On-Line Systems/Sierra Online Ken Williams started a garage company WorldStream Communications. He is now offering a system called talkspot.com allowing the publishing of websites for free. He doesn't plan making it into commercial product. He considers it his "hobby".

Ken Williams first book **Crossing an Ocean under Power** was published in 2004. It tells of a story of Ken and Roberta crossing the Atlantic Ocean on their 62' trawler. The book is a sort of "Dummy's Guide to Crossing Oceans".



Their son D.J. (1973-) works as a gourmet chef and Chris (1979-) is fluent in Japanese and making games.

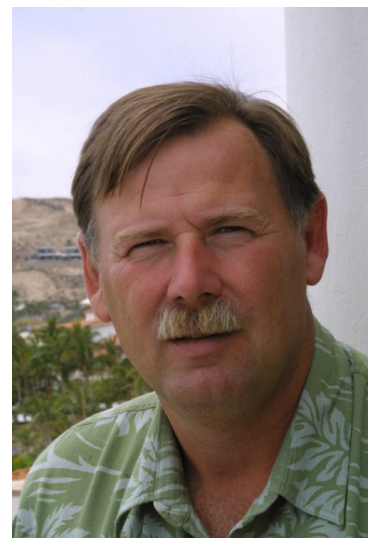
Ken Williams on Game Design

In an Adventure-Treff interview Ken Williams was asked:

The presentation states, "think entertainment, not games". What do you mean by that?"

Ken: "I used to say that Napster was the best entertainment product ever made. You need to flow backwards from thinking about how to entertain the audience, not from how do we do the next "doom clone". I had trouble getting my staff to think outside the box, but we always came closer than the competition. Napster is something that people do at their computers every day (or, least it was something they DID do everyday). I wanted our people to think in terms of "find a way to entertain a person in front of their computer" - not just to design another adventure game.

Innovation doesn't come from market research. I hated market research driven product development. For instance: Surveys that would show that "action shooters" are hot. This means everyone rushes an action shooter into development. I would instead look to see what was hot at the movies, in books, on TV. The question shouldn't be "what computer games do you like?" But instead - "What do you do to have fun?" Then you think about how it could be better with interactivity, and suddenly you have a product."



Question: "You also say, "empower the designer, then shoot them if it doesn't sell". Why so rigorous?"

Ken: "Great product is not designed by committees. 99% of the staff on every game thinks they are a better game designer than the game designer. Sometimes they are. This is irrelevant. Great novels are not team efforts. Great songs are not team efforts. Great entertainment happens when there is a clear vision for a product - not when there are creative battles, and the product that ships is a result of compromise."

Ken's Quest for the Perfect Game

(From the same interview as above)

Question: Maybe the most controversial design element of Sierra's adventure games was the possibility of dying. Why all these (often unpredictable) deaths?"

Ken: "In some cases it was poor design, in some cases it was the natural thing that the designer thought would happen if someone did it in "real life". I'm a perfectionist. Sierra never shipped a game I felt was perfect. This bugged my staff, because it was tough to get complements from me. Oh well. My goal was never a happy staff - it was a perfect game. We got as close as we did because I, and more importantly the Sierra culture, was to find the perfect game."

Bill Gates' Advice to Ken Williams



"By the time Sierra was sold, it was mostly a non-game company. In about 1990 I made the decision to focus away from games. This came about as a result of a discussion with Bill Gates himself. It's a bit of a long story, but we had been talking about Sierra and Microsoft doing a project together when I got bold enough to ask Bill if he would ever consider buying Sierra (I had always had tremendous respect for Microsoft, and would have teamed up with them in a minute). His answer changed Sierra's future.

People at Sierra remember this meeting well, because I came back and changed the company dramatically. Bill said that he had just noted the bankruptcy of United Artists. His contention was that they were in a hit driven business, and that ultimately in a hit driven business you run into a time of no hits. Sierra lived and died with the best seller charts. Fortunately, the charts were very good to us, but Bill's contention was they had also been good to United Artists. Ultimately, you run out of hits and die. It might take a hundred years, as was the case with United Artists, but it always happens. My goal with Sierra was to create a company that would live forever. I didn't want to be a "hit machine".

I set a new goal for Sierra to exit the hit business, and reorganized the company around a new vision to be 1/3rd education, 1/3rd productivity and 1/3rd perennial products. The first two categories should be obvious, but the last needs some explaining. My goal was to find products that could be "rev'ed" each year, such as Microsoft's Flight Simulator, or Electronic Arts Madden Football".



Lack of Women in the Game Industry

In Women Gamers interview Roberta Williams was asked:

What advice would you give to females who wish to join the gaming industry?

Her (abridged reply) was:

"You have to have a good idea of the market, who's there, who's not, what are the niches being filled, what are the niches not being filled, where can empty niches be best filled and how. Once you have figured out the answers to those questions; i.e., you've figured out a niche that needs to be filled, where it needs to be filled, and generally 'how' it needs to be filled, you then need to figure out how best to accomplish the goal of getting the project completed and on the market. (That's the hard part:>) However, a great design fitting an obviously large, but unfilled niche can oftentimes convince someone to invest in your idea. One tip, though: If it were me, I wouldn't just think only in terms of designing a computer product for women alone. I would think of something that BOTH women and men would like. It's difficult, but it can be done. I've done it".

Question: "Do you have any ideas about how to recruit more women into game development?"

Roberta Williams: "As long as most of the games being developed are for male players, it would be difficult to get more women into game development. I know that the answer I'm about to give will not be popular, but...

I think that women themselves will have to take the bull by the horns and figure out some computer games that women (and enough men) will want to play and then (somehow) get them done. Once those products have proven themselves popular and good-sellers, then women would have more doors opened to them. Sound difficult? Sound impossible? Maybe not impossible, but difficult, yes. Nobody said it would be easy. And, it's not just convincing those 'guys' to move over and let you in, it's also convincing all of those women out there to plunk down their money and sit at their computers and actually take the time to play a game!"

Screenshots and game covers are from MobyGames. Photos from above mentioned internet articles. Bill Gates' mug shot is from 1977 when he was jailed for a stop-sign violation.

References

- Steven Levy: Hackers (chapters 14-20)
Penguin books 1984 ISBN: 0-13-100051-1
- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition) (pages 134-143)
Osborne 2004, ISBN: 0-07-223172-6
- Ken Williams: Crossing an Ocean Under Power
Ken Williams 2004, ISBN: 1-4116-1918-8
Accessed on 17th March 2006, available for order from
<http://www.kensbook.com>
- Jan "DasJan" Schneider: Ken Williams Interview
Accessed on 13th March 2006, available on
http://www.adventure-treff.de/artikel/interviews/ken_williams_e.php
- Wikipedia entry on Ken Williams

- Accessed on 13th March 2006, available on
http://en.wikipedia.org/wiki/Ken_Williams
- Wikipedia entry on Roberta Williams
Accessed on 13th March 2006, available on
http://en.wikipedia.org/wiki/Roberta_Williams
 - James Hague: Halcyon days interview of John Harris
Accessed on 13th March 2006, available on
<http://www.dadgum.com/halcyon/BOOK/HARRIS.HTM>
 - Jess Morrisette: Ken Williams interview
Accessed on 13th March 2006, available on
<http://www.adventureclassicgaming.com/index.php/site/interviews/125/>
 - Andy Belatti: Roberta Williams interview
Accessed on 13th March 2006, available on
<http://www.adventureclassicgaming.com/index.php/site/interviews/127/>
 - Frank Cifaldi: Playing Catch-Up: Sierra Founder Ken Williams
Gamasutra 17th October 2005
Accessed on 13th March 2006, available on
http://www.gamasutra.com/php-bin/news_index.php?story=6864
 - Randy Sluganski: Roberta Williams Speaks Out...
Accessed on 13th March 2006, available on
http://www.justadventure.com/Interviews/Roberta_Williams/Roberta_Williams_Interview_3.shtm
 - Dr K Wright and Abby Marold: Interview of Game Goddess Roberta Williams
Women Gamers 18th May 2000
Accessed on 13th March 2006, available on
<http://www.womengamers.com/interviews/roberta.php>
 - Roberta Williams Fanclub
Accessed on 13th March 2006, available on
<http://www.backspin.org/kensentme/roberta/>
 - Sierra on-Line Fan Site
Accessed on 13th March 2006, available on
<http://www.sierragamers.com/>
 - Wikipedia entry of Sierra Entertainment
Accessed on 13th March 2006, available on
http://en.wikipedia.org/wiki/Sierra_Entertainment
 - William Hunter: The Dot Eaters: Player 4 Stage 2: "Why in the world would anyone want a computer at home?"
Accessed on 17th March 2006, available on:
<http://www.emuunlim.com/doteaters/play4sta2.htm>
 - MobyGames entry on Roberta Williams
Accessed on 17th March 2006, available on:
<http://www.mobygames.com/developer/sheet/view/developerId,60/>
 - MobyGames entry on Ken Williams
Accessed on 17th March 2006, available on:
<http://www.mobygames.com/developer/sheet/view/developerId,59/>
 - Talkspot.com website
Accessed on 18th March 2006, available on
<http://www.talkspot.com>

John Carmack (1970-) – Co-Founder of iD Software, programmer of Wolfenstein, Doom and Quake

John Carmack is the most famous and most highly-valued game programmer in the world. He is the main programmer of the Wolfenstein 3D, Doom and Quake-series of games. His game engines have been ported to numerous operating systems and have been used in many other games.



Early Years

John D. Carmack II was born on 20th August 1970 in USA. He spent his childhood in Shawnee Mission, Kansas. He didn't speak anything until 15 months of age, when he finally uttered a complete sentence: "here is your loofah, daddy". In second grade of school he scored nearly perfect score in every standardized test, placing him on ninth-grade comprehension level. He developed a unique way of speech, adding a short robotic humming sound to the end of his sentences, a habit he has still had at adult age: *"12 times 12 equals 144... mmmm"*

During his 5th grade his mother drove him to local Radio Shack, where he took a course on TSR-80 computer. Carmack taught himself to program.

Carmack 's parents were divorced when he was 12 Her mother Inga took care of him, but she didn't understand her son's passion towards games. He wanted John Carmack to get a good job, Mother even took the John to see psychologists to find out why once compliant boy had suddenly become so uncontrollable and dark.

Together with his young brother Peter, John Carmack moved to live with his father Stan, who was a news anchor living in Raytown. In Raytown Carmack met similar minded youngsters. Steven Levy's famous book **Hackers** was published in 1984. The books was described the *hacker ethic*, and told the story of many famous hackers. Carmack identified himself with hackers and adopted the hacker ethics.

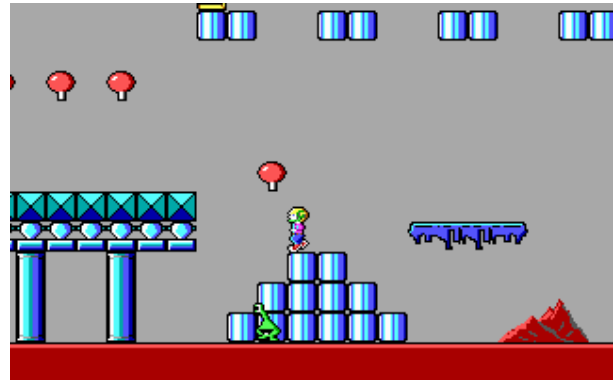
During his youth years in Raytown Carmack got interested in bombs and explosions. One night he and his friend decided to break into a school, where they knew was Apple II computers. Carmack used termite paste to melt through the glass, but one of his friends was so fat that he stuck on the window hole and triggered the silent alarm. The 14-year-old Carmack was arrested and police's evaluation of him was: *"Boy behaves like a walking brain with legs...no empathy for other human beings"*.

John Carmack graduated from Shawnee Mission East High school. During his high school years Carmack made his first game, called **Shadowforge**, which resembled Ultima. The game's publisher **Night Owl Productions** paid him \$1000, which he used to buy Apple II GS. In 1988 he reluctantly enrolled University of Missouri, Kansas City. He felt miserable there. He didn't care about keg parties or frat houses. The courses mostly just required memorizing things. There was no challenge, no fun. Carmack just wanted to play Dungeons & Dragons and other games and program. He dropped out of university after two semesters to work as a freelance programmer.

He made another game called **Wraith**, also published by Night Owl. This time he got \$2000, which he used on his other hobby - to modify his car.

Softdisk and Commander Keen

Soon Carmack was hired by Softdisk, a game company in Shreveport, Louisiana. There he met John Romero, a game designer and programmer, Tom Hall, a game designer, and Adrian Carmack (not related), a game artist. His colleagues were very impressed by his program code, which allowed making of a smooth-scrolling platform game like Super Mario Bros. done on PC - a feat, which nobody had done before. John Romero saw business opportunity in this and started to convince others to leave the company.



While still working for Softdisk Carmack, Romero and Hall created **Commander Keen** (Apogee 1990). The game was distributed as a shareware game. It meant that first levels of the game were free. If a person liked the game, he could purchase the whole game containing additional game levels.

Picture of Id Software workers, John Carmack on the left.



Forming of id Software

In 1991 John Carmack, John Romero, Tom Hall and Adrian Carmack left Softdisk and formed their own game development studio called **Id Software**, located in Mesquite, Texas. In 1990 they made a sequel to Commander Keen called **The Earth Explodes**. During the years 1990-1991 they

published 7 Commander Keen games. All of them were published as shareware via Apogee. They are all credited to be developed by ID Software, although that company didn't officially exist before 1991.

Wolfenstein 3D

Their big hit came on 5th May 1992, when they published a game called **Wolfenstein 3D** via Apogee. It was a first-person-shooter (FPS), which showed a real-time 3D view of what the player would actually see if he were inside the game. The game placed the player in a maze-alike environment filled with Nazi soldiers and angry guard dogs. Thanks to its simple, yet fluid game play, and state-of-the-art fast 3D graphics the game became an instant hit. The game was later ported to many computers including Macintosh, Atari Jaguar, Game Boy Advance, 3D0 and Linux.



Doom - the Game that Defined First-Person-Shooters

After the release of Wolfenstein 3D, John Carmack began creating a totally new game engine, which would allow levels of unseen realism in a fast-action oriented 3D game. The rest of the team finished **Spear of Destiny** (id Software/Apogee 1992), a sequel to Wolfenstein 3D. Spear of Destiny was not distributed as shareware. Wolfenstein's enormous success had created an enormous hype towards id's next game, which was entitled **Doom**. Doom was published as shareware on 10th December 1993. It was so popular from the very beginning that the net servers, which were distributing the free shareware version, became so overloaded that they came to a halt. In the following summers 1994 and 1995 I remember visiting Assembly demo parties and seeing an entire hallway filled with hundreds of computers. Most of the people were playing Doom and not doing or watching computer demos, which was the original purpose of demo parties.

The name of the game Doom was coined by John Carmack. The guys at iD software originally wanted to make a game based on an Aliens license, but they bailed out of the negotiations at the last moment as they felt the license was going to limit their creativity too much. Carmack suggested “*What if we did the same thing, except with hell spawn instead of Aliens?*” So one could argue that John Carmack was one of the main designers of the game, even though he was official just its main programmer.

Dawn of Deathmatch

What made Doom so radical was the combination of fast texture-mapped 3D engine and an extremely scary, dark, panic like atmosphere, which was further emphasized by music. The game was also the first FPS game for PC to include a 4-player networked game called the *deathmatch*. In deathmatch the 4 human players fought against each other. Every kill earned one “frag” point and committing a suicide (e.g. dropping into a bottomless pit or into lava or shooting a rocket too close to oneself) gave one negative point. Players were immediately reborn back into the game after a death and due to the fast tempo of the game, this often happened after just a few seconds. The one with the highest amount of frag points at the end wins.

Doom featured an array of weapons and power-ups, which soon became typical in FPS games. The game began using just a pistol and fists, which could be used if ammo ran out. But the game levels contained additional weapons, which could be picked up: chainsaw, shotgun, rocket launcher, plasma gun and the super powerful, but really slow, BFG 9000, which could wipe out an entire room of enemies with just one blast. The pickups of the game included armor, first aid kits, which restored the players health, blue demonic orbs, which allowed the boosting of the player’s health past 100%, and so on.

A little time after Doom’s release I remember writing an email to John Carmack (I found his email address in a Usenet Newsgroup). I was impressed by the technical quality of the game, but it required a pretty high-end PC to run smoothly (33 MHz Intel 486 PC at that time). I complained about a couple of game design issues in the game. For example it was difficult to see in which direction the enemy was firing at the player. So I suggested 4-way armor: front, back and left and right side would all have a separate armor rating. This would show the direction of enemy fire as one would see one directional armor disintegrating and increase the level of tactic as there could be situation when the player’s front armor is gone and he is vulnerable to fire from the front, but his back is still protected by armor. This idea was stolen from a 3D space shooter game called **Simulcra** (Microstyle 1990) for Atari ST and Amiga. I don’t remember Carmack’s exact reply, but I got the impression that he is an extremely technical person, not so interested in game design at all.

Doom Level Editors

Another thing, which also made Doom even more popular, was that in 1994 several level editor tools appeared to modify and make your own game level files, called WAD files, for Doom. Later these game modifications have been called mods. I have a CDROM, which contains over 1000 WAD files for Doom. I have randomly played only about a dozen of them and practically all of them were better than the original game levels that were provided with the game. Either I have been extremely lucky or this just points out how bad the level design was in Doom (lots of confusing places, only few suitable arenas for deathmatch). The level editors allowed gamers around the world make all sorts of levels for the game, making it sometimes look like a totally different game. Many of the most popular mods were based on existing movies, TV series, including Aliens, Star Wars, Ghostbusters, The Simpsons, X-files, Batman and so on.

Screenshot from *Quake 3 Arena* (id Software)



Quake - Client-Server-Based Multiplayer Shooter

In 1996 id Software released a new 3D FPS shooter called **Quake**. It allowed full 3D levels. In Wolfenstein all the game levels were 2D with flat floors. The Doom engine allowed the floors to have different heights, but it was still not possible, for example, to have a corridor under or above the current floor. Quake removed this limitation and it also included a crude perspective correction realized as a software transformation of its texture mapped 3D surfaces. Quake had a crude simulation of physics, with certain parameters, which could be altered, for example, to have less gravity in one specific game level. What made the biggest difference was the net code. In 1996 id released **QuakeWorld**, which used a client-server type network connection, and allowed up to 8 people to play the same Quake game over the internet. Doom had included much inferior net code, which allowed it to be played only in a local network. This revolutionized internet gaming. Hard code fans of the game began to organize themselves into *clans* to form teams for a very high level of competitive play.

Technical Genius

Chris Crawford Carmack has been quoted to say: “*game creation is 99% programming and 1% game design*”. Despite being self-taught, Carmack is universally considered to be one of the best game programmers in the world. His games have always been technical masterpieces and id software has been making lots of business by selling their game engines to other companies, which have created their own games using them. The most famous example of this is **Half-Life** (Valve 1998), which used a modified **Quake 2** engine.

In 2004 he finally got **Doom 3** ready, which featured yet another 3D engine, taking advantage of the new graphics features found on most recent PC graphics hardware. The Game was a success, but not as huge as the original Doom.

Advocate of Open-Source

Carmack is a well-known advocate of open-source software. He released the source of Wolfenstein 3D in 1995 and Doom source code in 1997. Later on he released the source code of almost all his games, most recently **Quake 3**, under GNU General Public License (GPL). Enthusiasts have been porting his games to other platforms, modifying and updating games or using the existing source code to create new games.

Carmack got met his wife Katherine Anna Kang in QuakeCon'96. Anna Kang was an Asian woman with the soul of white woman. She organized the first female-only Quake tournament. Carmack had estimate she would probably get only 25 participants, but she got 1500. Carmack liked to be proven wrong and began relationship with Kang. Carmack and Kang got married in January 2002 and their son was born 13th August 2004. Carmack is a rocketry enthusiast and founder of Armadillo Aerospace. Carmack is recognized for his innovations in 3D graphics. In 2001 Carmack became the 4th person to be selected to the Academy of Interactive Arts and Science's Hall of Fame.



References

- David Kushner: Masters of Doom: How Two Guys Created an Empire and Transformed Pop Culture
Random House 2004, ISBN: 0812972155
- Heather Chaplin and Aaron Ruby: Smartbomb (pages 95-125)
Algonquin Books of Chapel Hill 2005, ISBN: 1-56512-346-8
- Wikipedia article on John Carmack
Accessed on 4th of March, 2006 and available on http://en.wikipedia.org/wiki/John_Carmack
- Doom World interview of John Romero (mentioning the origin of the word "Doom")
Accessed on 4th of March, 2006 and available on <http://5years.doomworld.com/interviews/johnromero/>
- Crawford, Chris: On Game Design
New Riders 2003, ISBN: 0-13-146099-4.

John Romero (1967-) – designer of Wolfenstein 3D, Doom and Quake

John Romero is like a rock-star among game developers. He has often been featured on the cover of magazines. He is most famous for being the co-founder of id software, and co-designer of Wolfenstein 3D (idSoftware 1992), Doom (id Software 1993) and Quake (id Software 1996) as well as Daikatana (Ion Storm/Eidos 2000).

Early Years

Alfonso John Romero was born on 28th October 1967, in USA.

He began by making simple computer games, producing well over 30 games himself in the period 1982-1984. According to Romero “many of them were unpublished, mainly because they were my first games and sucked”. Romero’s first published game was **Scout Search**, published in 1984 by inCider magazine – a popular Apple II magazine during the 1980s. He got his face on the cover of the December 1987 issue of **Nibble**, an Apple II magazine – a phenomenon which was to be repeated many times in future.



Romero got his first game industry job at Origin Systems in 1987. His first job was to port **2400 A.D.** (Origin Systems 1987) from Apple II to Commodore C64. The project was abandoned due to the slow sales of the Apple II version. Romero’s next porting job was **Space Rogue** (Origin Systems 1987), a role-playing game, which was a predecessor to Origin’s better known Wing Commander-series. Space Rogue was designed and programmed by Paul Nereth, who asked Romero to join him in a venture to start a new game company called Blue Sky Productions, later renamed Looking Glass Technologies. Instead Romero left Origin Systems to co-found Inside Out Software in June 1988. His first job was to port **Might & Magic II**, a first-person role-playing game, from Apple II to Commodore C64. During that time he made **Dangerous Dave**, a demo game inspired by Super Mario Bros. (Nintendo 1985), for which he made a graphics library called GraBasic. He almost finished the Commodore 64 to Apple II port of **Tower Toppler** (also called Castelian and Nebulus) (Hewson 1987), but Epyx canceled all its ports due to their enormous investment in the first round of games for the upcoming Atari Lynx handheld console.

Romero designed the artwork for the Apple //gs version of **Dark Castle** (Apple Macintosh original published by Mirrorsoft 1987). Romero and his friend co-founded a games company called **Ideas from the Deep**. He wrote a game called **Zappa Roids** (Ideas from the Deep 1989) for Apple II //gs and PC.

Birth of id Software

In March 1989 Romero moved to Shreveport, Louisiana to work for Softdisk Publishing as a programmer. There he helped Big Blue Disk, a monthly disk magazine published by Softdisk, which contained freeware and shareware programs and sometimes demo versions of commercial software. After several months he was moved into that department and in 1990 he started a PC gaming division called Gamer’s Edge (originally called PCRCade). He recruited John Carmack into his department from Kansas City. He also moved Adrian Carmack from Softdisk’s art department into his division and talked Tom Hall to come in at night and help with game design. The team merged together and Romero convinced the others to co-found a new game company, **id Software**, which was launched on first February 1991.

Wolfenstein 3D

He co-designed **Wolfenstein 3D** (iD Software/Apogee Software 1992) with Tom Hall as well as co-programming it with John Carmack and Jason Blochowiak. The game was distributed using the shareware method and became a hit.



Doom

Doom (iD Software 1993) was co-designed with Shawn C Green and Sandy Petersen and co-programmed with John Carmack, Michael Abrash and David Taylor and is arguably the most important first-person-shooter game ever. Romero became obsessed playing the game and he was famous for cursing and swearing and even breaking furniture after losing or winning the game (as shown in picture).



Heretic and Hexen

A year later a commercial sequel **Doom II: Hell on Earth** (iD Software/Virgin Interactive Entertainment 1994) was published, featuring John Romero as the end game boss of the game. The Doom game engine was licensed to other companies to make games using it. One of them was Raven Software Corporation. Romero was the executive producer of **Heretic** (Raven Software/iD Software 1994), a fantasy game using the Doom engine. Heretic added a few things to the game engine e.g. ability to look up and down, fly and make an inventory. Romero was also executive producer for the sequel called: **Hexen: Beyond Heretic** (Raven Software/iD Software 1995). The game featured 3 alternative characters: the fighter, the cleric and the mage. Each had unique weapons and different levels of speed and armor. The levels were laid out in hub fashion, meaning that the levels were connected by a single main hub level, instead of the traditional approach where a player progresses from one level to another in linear fashion, never revisiting older levels. The

game also featured jumping, weather effects and destructible objects. Romero is in many ways responsible for the game design of Heretic and Hexen.

Quake

Romero co-designed **Quake** (iD Software 1996) with American McGee, Sandy Petersen and Tim Willits. This was a huge hit just like earlier 3D shooters by iD software. Romero's career was clearly on an upward spin, but Carmack was not happy. Since the release of Doom Romero had spent most of his time playing game and engaging in media talking in advance about the future projects. The new game designers hired to the company like American McGee were able to do work faster (and according to Carmack) better than Romero. Carmack finally got enough of Romero and fired him, even though he was one of the founders and owners of the company.

Ion Storm - The Story of an Enormous Waste of Money

Romero was famous like a rock star. So it was difficult for him to find financing for his next game company, called Ion Storm. He founded it with his co-worker Tom Hall, Jerry O'Flaherty and Todd Porter in Dallas in November 1996. The company's main office was set in Dallas, located on the 54th and top floor of the Chase Tower.

The hype around the company key members was so great that Eidos promised to pay \$3 million per game for the first three games and another \$4 million for the console rights. Eidos also wanted the rights to the next three games. Ion Storm was valued at \$100 million despite the fact it had not released a single game. With money pouring in from the windows the Texas office was made into a lavish office with marble floors, a private movie theater, \$1500 chairs, arcade games and 21" monitors for every employee. The ceiling of the penthouse office was a massive glass dome. But the game makers hated sunlight, so they had to spent an enormous amount of money to cover the dome with a custom-built moving shield and the cubicles of the programmers were covered in black fabric. The renovations alone cost around \$2 million.

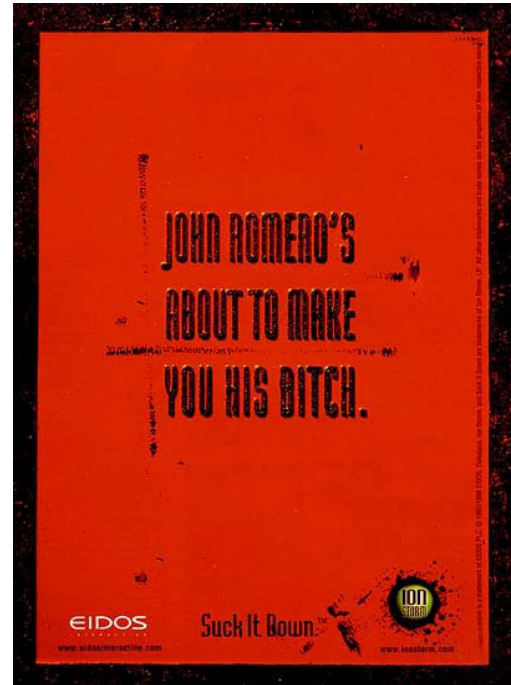


The Daikatana Story

The first game from the company was supposed to be **Daikatana**, a revolutionary first-person 3D shooter. Romero's initial game design, completed in March 1997, had 24 levels split into 4 different time periods, 25 weapons and 64 monsters. Despite the massive amount of content Romero was sure it would be ready in just 7 months. Eidos, the publishing company, was sure that Daikatana would be ready in record time for Christmas 1997 release, so they bought lots of advertising space and soon noticed they had nothing to show in that space. Then they decided to exploit the name of John Romero, who was a big name then thanks to his association with big hit games like Wolfenstein 3D, Doom and Quake. They ran a one page ad in a magazine with no screen shoots, no game name, but just a red page with big letters reading "John Romero's about to Make You His Bitch", with Eidos and Ion Storm Inc. logo and a small text saying "suck it down". In the book Masters of Doom, Romero told he was unsure of running the ad campaign, but was talked into it by PR man Mike Wilson, who had told him "Don't be a pussy". Everything would have been ok, if the game would have lived up to the hype and would have been ready for Christmas 1997, but it didn't.

In 1998 Ion Storm founded another office in Austin, Texas, lead by Warren Spector, a famous game designer and producer and company manager, who had worked on games including **Ultima Underworld** (Blue Sky Productions 1992), **SystemShock** (Origin Systems/Electronic Arts 1994) and **Thief: The Dark Project** (Looking Glass Studios/Eidos Interactive 1998).

The Daikatana project was way behind schedule and rumors of the extraordinary amount of money put into Ion Storm and the project started to leak to the media. The project began originally using the Quake engine, but around Thanksgiving 1997 they began to migrate to the Quake II engine. The company was burning money at an enormous rate and in order to create some revenue they decided to quickly put out **Dominion: Storm over Gift 3** (Ion storm/Eidos Interactive 1998), a real-time strategy game designed by Todd Porter. The game was actually originally developed by 7th Level, who sold the unfinished product to Ion Storm. The game was not a big seller.



In June 1999 Eidos and Ion Storm reached an agreement where Eidos got the majority of ownership of Ion storm. But the troubles continued. By October 1999 Eidos confirmed it had sunk \$44.8 million dollars into Ion Storm.

Daikatana finally came out in April 2000, after about 3 years, 2 game engines and with a staff of one hundred burned-out employees. Daikatana cost about 50 million dollars to make. The game looked sort of ok, but gaming technology had advanced beyond the Quake II engine by 2000. The game was mediocre and the gamers were disappointed as the game didn't live up to the hype. It end up selling only 200 000 copies, despite all the money poured into it.

In the Austin branch of Ion Storm **Deus Ex** (Ion Storm/Eidos Interactive 2000) - a first-person shooter, was created using the Unreal engine mixing role-playing games. It was designed and lead by Warren Spector. Deus Ex was both a critical and commercial success. Spector, not wanting to be associated with the flop of Dallas' Ion Storm, called the Austin branch "the other Ion Storm".

Hall and Romero left Ion Storm immediately after the release of **Anachronox** (Ion Storm/Eidos Interactive 2001). The role-playing game designed by Tom Hall Anachronox got good reviews, but didn't sell well. The Dallas' office of Ion Storm Inc. was subsequently closed down.

New Directions

Hall and Romero founded Monkeystone Games in July 2001 to make games for mobile devices including the Pocket PC, GBA, mobile phones and Nokia N-Gage. Their first title was **Hyperspace Delivery Boy** (Monkeystone Games 2002), a puzzle game designed by Tom Hall, originally made for Pocket PC and then converted to numerous platforms including PC Windows & Linux. Romero programmed and designed a puzzle game called **Congo Cube** (Monkeystone games 2003) for the PC. His co-worker and friend Tom Hall converted the game into versions for more than 30 different mobile phones, while Romero was busy making the N-Gage port of **Red Faction** (Volition/THQ 2001), a first-person-shooter game originally made for Playstation 2 and PC.

Romances

John Romero has been married three times. First he was married with Kelly Mitchell, with whom he has 2 boys: Michael and Steven. Then he got married with Beth McCall, with whom she has one daughter called Lillia.



In 1999 Romero started dating and living with Stevie “Killcreek” Case, one the world’s first female gamers to be known by a larger public. Case became even more famous by defeating Romero in a Quake deathmatch. Romero hired Case to work for Ion Storm and she eventually rose there into the status of level designer. Case used her game money to improve her looks by getting breasts implants. She stopped eating meat and went to gym and lost 50 pounds. Her more sexier image gathered the attention of Playboy magazine. Case was the Chief-Operating-Officer (COO) of Monkeystone games, until the couple broke up in early 2003.

In October 2003 Romero went to work for Midway games as project lead on **Gauntlet: Seven Swords** (Midway games 2005). Monkeystone games was closed in January 2005.

In January 2004 Romero married Raluca Alexandra Plesşa (1985-), a young Romanian born female gamer and huge fan of the games created by Romero. Raluca Romero moved to the USA on 6th May 2005, 15 months after their marriage.



In June 2005 Romero left Midway games just a couple of months before the game was completed.

On 31st August 2005 he confirmed to the media that he is co-founding yet another game company and according to his own words *"I am much better off in many ways than I was at Midway"*. In early 2006 he confirmed to the media that he is working on a massively multiplayer online game, not wanting to describe the game further, he described the money spent in its production: *"It's a lot of money, this is the most money I've ever spent on a game - in Gauntlet it was like \$10 million, but this is much more."*

References

- David Kushner: Masters of Doom: How Two Guys Created an Empire and Transformed Pop Culture
Random House 2004, ISBN: 0812972155
- Heather Chaplin and Aaron Ruby: Smartbomb (pages 95-125)
Algonquin Books of Chapel Hill 2005, ISBN: 1-56512-346-8
- Wikipedia entry on John Romero
Accessed on 6th March 2006, available on http://en.wikipedia.org/wiki/John_Romero
- John Romero's Personal Website
Accessed on 6th March 2006, available on <http://rome.ro/>
- Benjamin Turner: Creating DOOM: Romero Remembers
Gamespy.com article 12th December 2003
Accessed on 6th March 2006, available on <http://archive.gamespy.com/articles/december03/doom/romero/>
- The 25 Dumbest Moments in Gaming #9: Eidos' Texas Scramble
Accessed on 6th March 2006, available on <http://archive.gamespy.com/articles/june03/dumbestmoments/index16.shtml>
- The 25 Dumbest Moments in Gaming #5: Romero Threatens to Make You His Bitch
Accessed on 6th March 2006, available on <http://archive.gamespy.com/articles/june03/dumbestmoments/index20.shtml>
- Ideas from the Deep Website
Accessed on 6th March 2006, available on <http://www.ifd.com/>
- James Sterrett: Reasons for the Fall: A Post-Mortem on Looking Glass Studios
Accessed on 6th March 2006, available on <http://ttl.g.com/articles/lgs-closing.asp>
- Raluca Romero's Personal Web site
Accessed on 6th March 2006, available on <http://rhaluka.com/>
- Ellie Gibson: Romero Working on MMO
Eurogamer article on 2nd January 2006
Accessed on 6th March 2006, available on http://www.eurogamer.net/article.php?article_id=62711

Dan Bunten / Danielle Bunten Berry (1949-1998) – Early Pioneer of Multi-Player Games

Dan Bunten, later known as Danielle Bunten Berry after a male-to-female sex change operation, was an early pioneer of multi-player games. Many game designers and game enthusiasts consider his game M.U.L.E. as one of the most brilliant game designs of all time. Sadly Bunten was usually ahead of his time and most of his games were not successes.

Childhood and Early Games

Daniel Bunten was born on 19th February 1949. He spent his childhood in Little Rock, Arkansas, USA. In 1974 Bunten graduated with a degree in industrial engineering and started to program text-based computer games as a hobby.

In 1978 he made his first game, **Whealers Dealers**, which was a real-time auction game. It was also the first game to out in a box, when all other games were published with a cassette. The game was made for Apple II, which had only 2 game controller ports. The game came with a custom input device, which had 4-push buttons, one for each player. The game was published by Speakeasy Software, but sold only 50 copies, because it cost \$35, compared to \$15, which was typical for a game of that time.

His next 3 games were done for Atari II and published by Strategic Simulations (SSI): **Computer Quarterback** (SSI 1978), **Cartels & Cutthroats** (SSI 1981) and **Cytron Masters** (SSI 1982). Cytron Masters was also made for the Atari 800. It was Bunten's first graphical game and combined strategy and action elements.

M.U.L.E. - Multiple Use Labor Elements

In 1983 Bunten and his company **Ozark Softscape**, which had 5 employees, created their most legendary game **M.U.L.E.**. It combined the auction element from **Whealers and Dealers** and real-time graphics from **Cytron Masters** to make a unique business and strategy set in outer space. The graphics of the game were crude even when compared to the games of its time. Still many people consider it one of the best games of all time. M.U.L.E. stands for Multiple Use Labor Elements, which is a machine that can produce food, energy or mineral, depending where the machine is set on the map. Bunten recollects that while making the game he finally understood the value of play-testing to perfect the game-play and user-interface. M.U.L.E. was published by Electronics Arts, and it was a decent hit selling over 150 000 copies, despite being one of the most pirated games of its time. It has been published later for many other platforms including PC and NES. Bunten almost made a Sega Genesis version of the game, but Electronics Arts insisted on adding guns and bombs to "bring it up-to-date". Bunten refused these changes and the project was buried.



Seven Cities of Gold and Modem Wars

His next game was **Seven Cities of Gold** (Electronic Arts 1984) for Apple II, Atari 800 and C64. It was his best selling Game. It can be classified as an edutainment game and it was Bunten's first game, which didn't allow more than one player.

Other notable games from Bunten are **Modem Wars** (Electronic Arts 1988) for C64 and PC. It was the first commercial two-player game played over a dial-up modem. The sales were poor, because most gamers didn't have modems at that time.



The Case of Two Board Games

Then Bunten departed to work for Microprose. He had to choose between working on computer versions of **Axis and Allies** or **Civilization** (both which were well-known strategic board games). Sid Meier convinced Bunten to choose Axis and Allies, which later became **Command HQ** (Microprose 1990). And Meier gained his fame with Civilization. Command HQ was a war game designed around the KISS maxim ("Keep It Simple Stupid"). The game had a mouse-operated "click to select" and "click to set destination" interface, which had already been introduced earlier in Modem Wars.

Transformation into Female and Last Years of Life

After his second marriage failed, Bunten went through a sex-change operation. She changed her name into Danielle Bunten Berry. Her life became more low-profile and her focus started to shift more and more towards Internet games.

On 7th May 1998 Bunten was awarded the Lifetime Achievement Award by the Computer Game Developers. Just less than months later, on 3rd July 1998, Bunten died of lung cancer. She had been a chain smoker since her teens.

Most of Bunten's games were multi-player games combining the elements of war and/or business. She was often ahead of his time, always pushing the boundaries further. She has given many lectures and interviews and they contain useful insight, which I think is essential reading for anyone interested in the design of multi-player online games. Here is an excerpt from a lecture from the 1997 Computer Game Developers Conference:



Good Multi-player Design Elements

Here comes my annual punch list of things to consider when designing multi-player games updated and expanded from last year based on what we've learned:

- *Build in the "Norm Effect" if at all possible. This is named for the character from "Cheers" who when he enters the bar is greeted by everyone calling his name in unison. Pitiful old IRC chat-rooms can provide some of this effect so surely we can find some way to welcome people into our game environments.*

- *"Zero sum" is bad. Games where I win and you lose are bad. Worse still is "I win and all the rest of you lose". Notwithstanding the current cultural obsession with endzone strutting by winners, losers do not enjoy themselves and if you can help take the sting out of it, you should. Alliances, cooperative play, ranked "winners" rather than "A winner" with a bunch of losers are all options.*
- *Pacing needs variety. Slow periods should follow intense ones and forced "time-outs" can offer opportunities to socialize, catch your breath and anticipate things to come. Remember, the players no longer have a "pause key" as they did in a solo-game.*
- *Strategies need "wiggle room". People have different personal styles and when playing against each other it's great to let them "do it their own way" rather than a single approach that all must follow. If possible you should balance the game such that a strategic planner for instance might not always beat the joystick jockey or the detailed tactical type. A game that allows for diverse people to play diverse ways is always best.*
- *Legends must grow. Provide ways for players to carry their experiences with them. "Game films" are an excellent (and reasonably cost-effective option) in games where what's sent between the player's computers is a stream of "deltas". Saving that stream and running it back through the game engine provides an opportunity to review what happened during the game. This turns an ephemeral, fast paced experience into a story that can be used to "save face" if the player lost, to learn how to win or just to chronicle their accomplishments. At the very least, try to include ongoing statistics or character attributes outside the environment of a single game execution.*
- *Court your newbies. Nothing will destroy a player's interest in your game quicker than being humiliated a few times when they are just trying to figure out what to do. If possible build in inducements for advanced players to help newbies in order to get something to advance further in the game environment -- like taking an "apprentice" might be the only path to "master rank". At the very least try to make starting as safe on player's egos as you can.*
- *Allow personalization. Let players define their own icons that the others see or somehow personalize their own game space. A big part of the enjoyment of being with others is expressing yourself. A bunch of player avatars all dressed from the same menu gives me the creeps. Encourage graffiti.*
- *Keep the features down. When humans play each other there's this "he thinks that I think that he thinks ..." kind of mental gymnastics taking place. This is far more interesting than another unit type or another option to evaluate to almost everyone.*
- *Include audio/visual subtleties. People are remarkably good at recognizing patterns almost subconsciously and they also find it rewarding. A couple of pixels blinking in the corner of the screen and a small sound effect that allude to a possibility allows a player to feel very astute when they can put it together with an outcome. This can also facilitate the personal playing style mentioned above since some folks are better at it than others.*
- *Avoid numbers. Almost no one enjoys calculations. (At least no one "normal"). Humans prefer heuristic (rules of thumb) relationships or continuous equations far more. The heuristics feel good when you figure them out and the continuous equations can only be predicted which also seems to scratch an itch in our brains.*
- *Include spectators. Leave room for "lurkers" to watch games being played and even to affect them in minor ways if possible. A design that includes taking turns, which makes the other players spectators for part of the time, can be interesting if what the player is doing has an effect on them, is interesting to watch and they can tease, taunt and kibitz while watching.*
- *Facilitate relationships. Allow players to form clubs, clans, groups and facilitate scheduled as well impromptu meetings online. Help strangers mix and friends find each other.*

- *Use time limits.* Whenever possible design your game so it can be played within a fixed time limit. This will allow people to schedule their involvement. A game you can play a couple of times in an evening would be a good design goal. If you can't end the game at specific times try to at least facilitate a graceful exit opportunity such that a player quits while they are having fun and not after they're so exhausted they'll never come back again.
- *Include chance.* Although most players hate the idea of random events that will destroy their nice safe predictable strategies, nothing keeps a game alive like a wrench in the works. Do not allow players to decide this issue. They don't know it but we're offering them an excuse for when they lose ("It was that damn random event that did me in!") and an opportunity to "beat the odds" when they win.
- *Keep the balance.* Try to keep the distance between the losers and the winners small enough that the outcome is in doubt as long as possible. You can adjust random events, attrition factors or whatever. They'll thank you for keeping the games interesting even though you should probably not tell them what you're doing.
- *Include cooperation.* Even in basically competitive games you can allow for alliances, collusion or at least less cutthroat behavior. In M.U.L.E. I used an interesting trick that would not allow a "Winner" unless a certain threshold of colony success was reached. In order to win players had to sometimes help each other out so the whole colony would thrive thus making the balance closer and play more interesting.
- *Make 'em stay.* Figure out incentives to keep players to stay till the end of a game. It ruins everyone's fun when players bail out prematurely. At the very least you can publish the percent of the time they bailed.
- *Allow handicapping.* Let players handicap themselves if they want. Some players are willing to play with one hand behind their back so let them. (The most common use of this will be parents and kids playing together).
- *Facilitate special events.* "Magical appearances" (scheduled and otherwise) in FRPs are cool. Strategy game tournaments (sanctioned and not) are too.
- *Leave room for ads.* Banners will be around for a while. You might even want to let Nike outfit your monsters with shoes - for a price. Be creative.

References

- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition)
Osborne 2004, ISBN: 0-07-223172-6
- Wikipedia article on Dan Bunten
Accessed on 4th of March 2006 and available on http://en.wikipedia.org/wiki/Dan_Bunten
- Eidolon: Memorial page to Dan Bunten / Danielle Bunten Berry
Accessed on 4th of March 2006 and available on <http://www.worldofmule.net/mulememo.htm>
- James Hague: Halcyon days interview of John Harris
Accessed on 13th March 2006, available on <http://www.dadgum.com/halcyon/BOOK/BERRY.HTM>
- Arthur Leyenberger: Interviewing Dan Bunten
Accessed on 4th of March 2006 and available on <http://www.atarimagazines.com/v3n9/profiles.html>
- Happy Puppy: Dan Bunten Tributes
Accessed on 4th of March 2006 and available on <http://www.anticlockwise.com/dani/greg.htm>

Chris Crawford (1950-) - game designer, programmer and author of books on game design, founder of the Game Developer's Conference and Journal of Computer Game Design

Chris Crawford is one the most valued veteran game designers in the world. His 1982 book, **Art of Computer Design**, is still a currently-read classic on the subject of game design. He organized the first Game Developer's Conference (GDC) in 1987 at his home.

Early Years, Atari and War Games and Simulations

Christopher Crawford was born in 1950 in Houston, Texas.

Crawford received a Bachelor of Science in Physics from UC Davis in 1972 and Master of Science in Physics from University of Missouri, in Columbia, 1975. After school Crawford taught at community college and University of California and made games as his hobby.



His first two games were **Tanktics** (1978), a 2-player tank battle game on a hex grid, and **Legionnaire** (1979), a war strategy game. Neither of these were big successes, but earned him some money. Crawford recollects Legionnaire selling about 100 copies for \$10 each. Tanktics sold 150 copies at \$15 each and left him about \$1000 after the marketing and cost of the goods.

In 1979 Crawford's teaching job finished and he started to look for a new job. His wife Kathy saw an advertisement in a newspaper; "programmers: design your own games". Crawford went to an interview, but the head hunter turned him down despite the fact that he had games to show, which he had made himself. He went home with his hopes crushed. He picked up a phone book and called the first game company listed in the yellow pages. That company was Atari. In September 1979 he was hired by Atari and worked there until its collapse in March 1984.

His first game for Atari was **Wizard**, which he programmed for Atari VCS/2600. The game was finished in January 1980. Unfortunately it was a 2 kilobyte ROM cartridge game and Atari had just made a transition from 2 kB ROM carts to 4 kB carts, allowing better audio-visuals and larger games. The game was never published.

Next Crawford made **Energy Czar**, an educational simulation. It was finished in June 1980, but Atari didn't publish it until January 1981. Next he did **Scram** (Atari 1981), which was a simulation of a nuclear power plant.

Eastern Front 1941

In 1981 he made one of his most famous games called **Eastern Front 1941** (Atari 1981). It was made for 8-bit Atari home computers and allowed the player to command units at the corps level and it had different terrains, weather, supplies, unit morale and fatigue and full screen scrolling and graphics.

The Art of Computer Game Design

In 1982 Crawford published a book called **The Art of Computer Game Design**. It was the first book about computer game design and it is still a used and read book all over the world.



Gossip - Early Attempt at Simulating Human Interactions

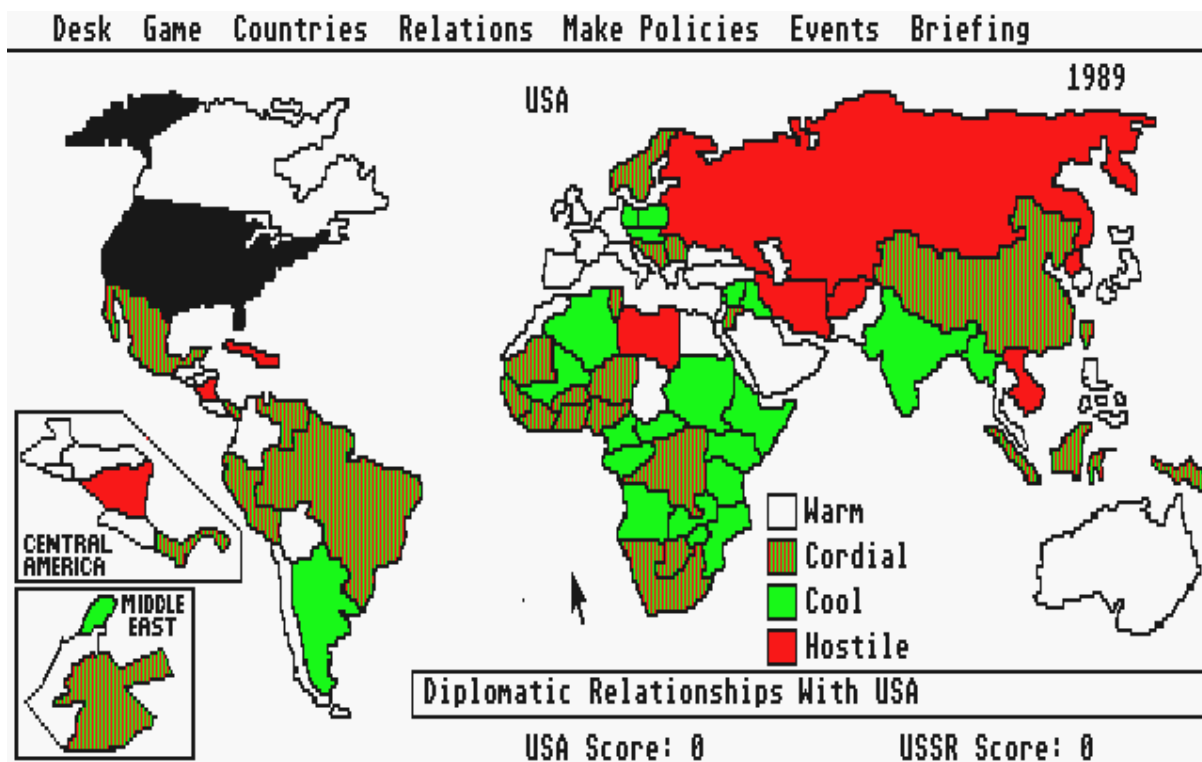
In 1983 he made **Gossip** (Atari 1983). It tried to simulate human social interaction by having faces of people on the screen, who were gossiping with each other. **Gossip** sold on few copies but it was not actually a game, rather a software toy, as it lacked a goal.



Balance of Power - Or How to Prevent the Nuclear Holocaust

Balance of Power (Mindscape 1985) was Crawford's most successful game. It is a strategy game simulating the geopolitics of the Cold War. The player could either play the president of United States or the general secretary of the Soviet Union. His goal was to lead the chosen superpower for eight years, maximize prestige and avoid nuclear war. If the latter happened the game printed a message on screen reading: *"You have ignited a nuclear war. And no, there is no animated display or a mushroom cloud with parts of bodies flying through the air. We do not reward failure."*

In 1986 Crawford made a book called **Balance of Power**, where he explains the game's inner workings in detail. In 1989 a second version of the game was published with the name of **Balance of Power: The 1990 Edition or Balance of Power II**.



Chris Crawford also designed and programmed **Balance of Planet** (Chris Crawford 1990), which simulated the earth's eco-system. It was slightly similar to Will Wright's **Sim Earth** (Maxis Software/Mindscape 1992), but instead of changing the mechanisms of the nature itself, you influence society by funding and taxing.

Siboot - and Inverse Parsers

Trust & Betrayal: The Legacy of Siboot (Mindscape 1987) was perhaps his most unique creation. The game features inverse parser, which allowed the player to construct sentences out of the words

while only presenting words which made sense in the given context. It also had a primitive form of tool tips. If the player held a mouse on top of an icon, the game abstraction of the word, he saw its meaning displayed on screen. Crawford considers Siboot as the world's first narrative-game. The game sold only 5000 units on Apple Macintosh.

Despite their original ideas I can guess why many people have found Crawford's games boring to play. They lack the audio-visual flashiness to draw the player inside the game and are generally too slow-paced or complicated from the start for my own tastes as well.

Later Games

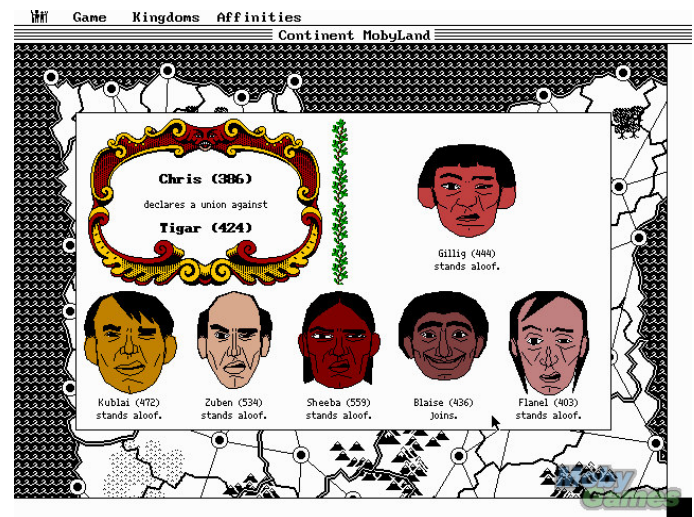
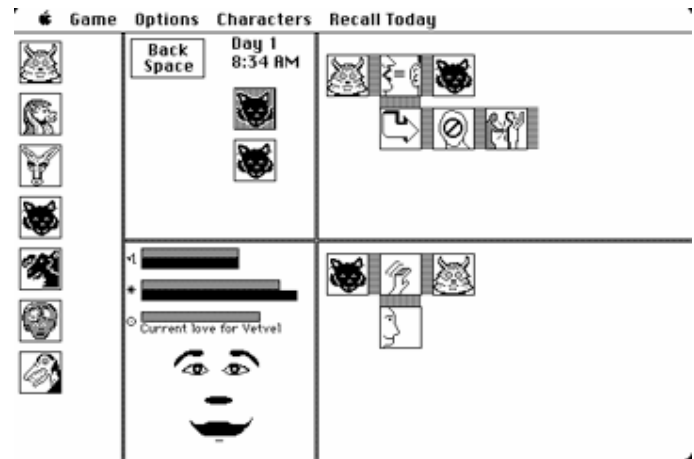
For his earlier games Crawford did everything himself, including graphics, design and programming. In 1986 Crawford did the design and programming of **Patton vs. Rommel** (Electronic Arts 1987), a turn-based strategy game set on World War II, simulating a fictional battle between General Patton and Field Marshal Rommel for control over Normandy.

He was the programmer and designer for **The Global Dilemma: Guns or Butter** (Mindscape 1990) which is an economical-political simulation over three basic industries: coal mines, lumber mills or gunpowder factories. The dilemma is whether to increase the military strength or the population - guns or butter.

For **Patton Strikes Back: The Battle of the Bulge** (Chris Crawford Games/ Brøderbund Software 1991) Crawford acted as lead designer and, according to him, did 90% of the work, even though the game credits mention 5 other people doing the implementation of the game.

Game Developer's Conference

In 1987 Crawford organized the first **Computer Game Developer's Conference** in his own house. It had so few attendees that they could all fit into his living room. In the same year Crawford also founded the **Journal of Computer Game Design** and acted as the publisher and editor of this academic style journal for a year. Over the years the Computer Game Developer's Conference has grown into a massively multi-day event with thousands of participants from all over the world. In 1999 it changed its name to the **Game Developer's Conference (GDC)**.



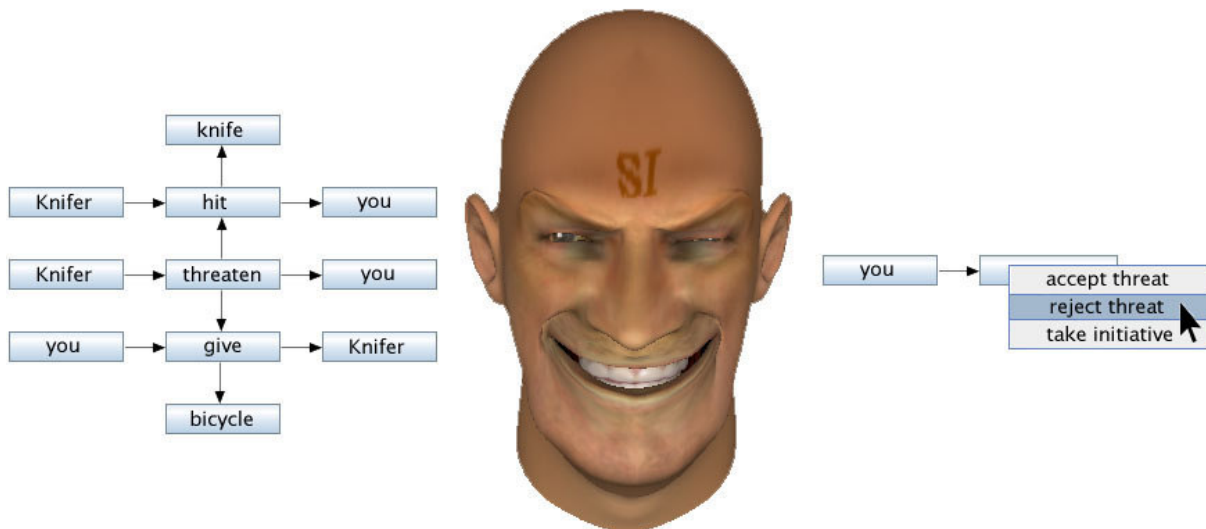
Crawford delivered the keynote speech during the first years of the conference. Many of his GDC speeches are particularly memorable, including the “whip” speech where he used a real bullwhip perilously close to the audience to demonstrate his point, and the “dragon” speech, where he used the dragon as the *metaphor for the unattainable goal of artistic expression through computer game design* (Crawford’s own words). At the end of the dragon speech Crawford confronted an imaginary dragon stating: “*After all these years, I can finally see you*”. He ended his speech with the words “*charge*” and ran out to the corridor and did not return. The shocked audience sat there for a while, until they finally understood that Crawford was not coming back.

Dream about Interactive Story-Telling

In recent years Crawford has been publishing more books and working on the Erasmatron, which is an authoring tool to create interactive electronic story worlds. Crawford believes that a well-designed interactive story could be superior to games.

Erasmatron, the tool for interactive story-telling, finally evolved into **Storytronics**. Chris Crawford is currently working as the head of **Storytronics**, an US-based company. Their product consists of several components:

- **Storyworld** consists of dramatic components, such as actors, locations, props, and dramatic principles, which are the ways in which the dramatic components e.g. actors interact with each other
- **Storyworld Authoring Tool (Swat)** is a tool for storybuilders to make new story worlds without programming knowledge
- **Deikto**, is a miniature language (similar to English) designed specifically for interactive story-telling
- **Storytron** is the program, which presents the storyworld to the player



I don't know how well the system works at the moment, but I guess it is still in an early phase, because it is not yet available to the public. Swat will made available freely and content created with it will be included in the Storytron.com storyworld library. Players can access this library for a small monthly fee and the storyworld authors will be paid according to how many users their storyworld has attracted.

Crawford's Thesis on Game Design

Crawford's **On game Design** book has 96 short lessons on game design. Here are some of the best, which I think are essential for those, who want to be great game designers (with my own comments in parentheses):

- *Those who would build the future must understand the past (Learn the history of games)*
- *Good games do not physical reality; they mirror emotional reality*
- *Keep the player on the razor edge of failure, but don't let him fall*
- *Eliminate loopholes that allow player to evade the challenge of the game (if they allow to skip a difficult/boring part of game, they are actually good)*
- *Games, like stories, require conflict to have any life*
- *Interactivity is the essence of what you are selling (Crawford argues that the more interaction the game offers, the better it is and the more it will sell)*
- *Read more*
- *Wonder more*
- *The absence of graphic information can be just as stimulating to the player's imagination as its presence (e.g. hiding things in the dark, showing them only via sound or text)*
- *Don't get a job in the games industry unless you really, really love games (I would want to add: if you study or teach games, you should also really, really have a passion for them – you don't need to love all games, just love some of them)*
- *There are a million great game ideas just waiting to be implemented*
- *Never build a technology and then go looking for a game to fit it (actually from the game sale point of view making a technology first might be good idea e.g. Far-Cry (Crytech 2004))*
- *Play non-electronic games too (board games, card games, dice games, table-top role-playing games)*
- *Begin each project with a one-page specification of the game play.*
- *Sometimes the most brilliant design stroke is to kill the idea.*
- *Other people can't see your vision; you have to make it happen yourself (that is why it is almost essential for a designer to be able to have at least basic programming and drawing skills, or have people helping with the first visualization)*
- *Always ask: "What does the user do?"*
- *Polish, polish, polish! Take a minimum of six months after alpha for polishing.*
- *Publishers hold all the cards; designers are lucky to get whatever they can.*
- *Sometimes a great idea just doesn't make the game any better.*
- *No matter what the schedule says, give the game enough time to get it right.*
- *Know your topic inside and out.*
- *Accept full moral responsibility for the games you design (I wish more people in the entertainment industry would think about the moral consequences of their work)*
- *In the games biz, trust no one (people with false promises are way too common)*
- *Your game must be fun on typical machines, not top-of-the-line machines (if you want high sales for a PC game, it should run well on a typical computer of its time – remember many people play games on computers not made for game-playing)*

Crawford on Bad Ideas

Jages Hague asked in Halcyon Days interview:

In all your years in the game industry, what's the most preposterous thing you've seen or heard?



Crawford: Hard question; there have been so many. There was an interface that hooked a games machine up to an exercycle, the idea being to give people a chance to play an interesting game as they were exercising. Most of the game ideas involved pedaling harder to escape from something chasing you. The idea got pretty far, until somebody asked, "What happens if a customer keels over from a heart attack?" Scratch that idea. Then there was the doodad that attached to your head and



picked up brain electrical activity. The idea was to play a game by controlling the machine with your thoughts. They actually built it and tried it out. Problem was, people would get so excited in a game, they'd scrunch their facial muscles all over trying to control their players on the screen. Gave 'em gigantic headaches. Scratch that idea. Then there have been the numerous ideas to put electrical shock devices into machines to make the game seem more realistic when the player suffered pain. Aside from the cruelty of the idea, and the simple fact that no sane person would ever pay money for such a device, there's the fact that it denies the very purpose of a game: to experience dangerous things safely.

References

- Crawford, Chris: On Game Design
New Riders 2003, ISBN: 0-13-146099-4.
- Crawford, Chris: The Art of Computer Game Design
Osborne/McGraw Hill, Berkeley, CA 1982
Accessed on 4th March 2006, Entirely available on the web at:
<http://www.vancouver.wsu.edu/fac/peabody/game-book/Coverpage.html>
- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games
(2nd Edition) (pages 41, 51 and 53)
Osborne 2004, ISBN: 0-07-223172-6
- Petri Kuittinen's personal email correspondence with Chris Crawford in March 2006
- Chris Crawford's auto-biography at erasmatazz.com website
Accessed on 15th November 2006, no longer available on
http://www.erasmatazz.com/team_bios/chris.html
- James Hague: Halcyon Days Interview of Chris Crawford
Accessed on 17th March 2006, available on
<http://www.dadgum.com/halcyon/BOOK/CRAWFORD.HTM>
- Storytron.com web site
Accessed on 4th March 2006, available on
<http://www.storytron.com>
- Wikipedia article on Chris Crawford
Accessed on 4th March 2006, available on
[http://en.wikipedia.org/wiki/Chris_Crawford_\(game_designer\)](http://en.wikipedia.org/wiki/Chris_Crawford_(game_designer))
- Wikipedia article on Computer Game Developer's Conference
Accessed on 4th March 2006, available on
http://en.wikipedia.org/wiki/Computer_Game_Developers'_Conference
- MobyGames entry on Chris Crawford
Accessed on 17th March 2006, available on
<http://www.mobygames.com/developer/sheet/view/developerId,744/>

Sid Meier (1954-) – game programmer and designer of Civilization, Railroad Tycoon and Pirates!

Sid Meier is often said to be the best computer game designer or among the best. He is famous of creating many flight combat simulators and most importantly for creating the original Railroad Tycoon, Civilization and Pirates! Civilization occupies the number one spot on many gamers' greatest games of all time lists.

Early Years of MicroProse

Sid Meier was born in 1954 in Detroit, USA.

Together with Bill Stealey, a former air force pilot, he founded **MicroProse Software Inc.** in 1982. Their first game was called **Hellcat Ace** (MicroProse 1982), which was a flight combat simulator. It was followed by several other flight combat simulator games. The most notable of these were **Solo Flight** (Microprose 1982) and **F-15 Strike Eagle** (Microprose 1985). The latter had realistic head-up displays and navigation systems found in a real F-15 fighter airplane. F-15 Strike Eagle's frame rate was choppy and it had poor graphics compared to modern flight simulators, but it paved the way towards realistic imitation of actual airplanes. All 3 games were designed by Meier and programmed with Meier and Stealey using a custom language called SidTran.



In 1985 MicroProse published a game called **Silent Service**, which designed by Meier. It was the first really realistic submarine simulator. It was made for all popular home computers of its era: Commodore C-64, PC, Atari ST and Amiga. The game was very easy to get into, unlike most war games, and it had good graphics for a game of its era.

Meier took part in making **Gunship** (Microprose 1986), by doing programming and play-testing. Gunship was a ground-breaking Apache AH-64 helicopter simulator using detailed 3D graphics, which were really rare at the time. The game features hundreds of missions. It was originally published for Commodore C-64 and PC, but later ported to other platforms as well. Gunship was designed by Arnold Hendrick and Andy Hollis. Hollis and Gregg Tavares were also doing programming for it.

Pirates!

In 1987 Microprose published a game called **Sid Meier's Pirates!** It was designed and programmed by Meier and many people consider it as one of the greatest games of all time. It allows the player to play a pirate, first selecting its nationality and skills. The game-play is very varied including selling merchandise, hiring sailors, repairing ships, paying for prisoners, 1-on-1 real-time sword duel, fights in the sea, possibility to get married and of course lots of sailing from town to town and attacking other ships in random encounters.



Railroad Tycoon

In 1990 Meier made a game called **Railroad Tycoon** (MPS Labs/MicroProse 1990). It was a business simulator game allowing the player to build and run his own railroad company in USA in 1830, Western USA in 1866 or Europe in 1900. The game was inspired by 1830, an Avalon Hill board game designed by Bruce Shelley. Actually Shelley co-designed the Railroad Tycoon game with Meier. Railroad Tycoon has spawned many sequels and many of them have proven to be million-sellers. There are also other game series with the Tycoon-ending e.g. **Rollercoaster Tycoon** or **Transport Tycoon**, but they are not directly related to Meier's work.



In 1990 Meier and Shelley also made an action strategy game simulating the life of a spy called **Sid Meier's Covert Action** (Microprose 1990). The game featured a super-spy called Max Remington, who was heavily influenced by Agent 007 - James Bond.

Sid Meier's Civilization

In 1991 Microprose published a game called **Sid Meier's Civilization**. It is Meier's best known game and often voted as the best computer game of all time. Not many people know that it is actually loosely based on **Civilization**, a board game designed by Francis Tresham and published in UK in 1980 by Hartland Trefoil (later by Gibson Games) and published in 1981 in USA by Avalon Hill. Meier admits borrowing many of the ideas of the technology tree from the board game. Nowadays a board game exists based on the computer game version of Civilization.



Civilization is a turn-based strategy game, which tries to simulate the history of human civilization from our earliest achievements (making fire, inventing the wheel and the alphabet) up to the latest technological breakthroughs such as nuclear fission and space flight as well as issues like religion, philosophy etc. In the game of Civilization one player controls one nationality e.g. the Aztecs or the Barbarians or the Russians. The aim of the game is destroy all other civilizations in war or be the first civilization to succeed in space colonization by building a space ship to reach Alpha Centauri.



Civilization has been ported to numerous platforms and it has many sequels. Many of Meier games have sequels, but he dislikes designing them himself, preferring to work on new ideas. Meier only gave his help as consultant to the following sequels of **Civilization**: **Civilization II** (MPS Labs/MicroProse



1996), **Alpha Centauri** (Firaxis games/Electronics Arts 1998), **Sid Meier's Civilization III** (Firaxis Games/Infogrames Interactive 2001). The total sales of Civilization exceed 5 million, making it one of the best selling PC games of all time.

FreeCiv is a free open source game heavily influenced by Civilization. One could argue that FreeCiv is a clone of Civilization.

Firaxis

In 1993 Spectrum Holobyte acquired MicroProse. In 1996 the merged company put all its titles under the brand of MicroProse. Sid Meier and Jeff Briggs left the company and formed a new company called **Firaxis Games** in 1996. In 1998 Hasbro Interactive, a division of the US toy company Hasbro, acquired Microprose. A year later Hasbro closed the former MicroProse studios and in 2001 the French game publisher Infogrames took over Hasbro Interactive.



Gettysburg

Sid Meier's Gettysburg! (Firaxis Games/Eletronic Arts 1997) is a real-time strategy game attempting to recreate the battle of Gettysburg in the American Civil War. Meier said he wanted to make a game like that a long time earlier, but he had to wait until the time when the technology was ready to allow to it be done with a realistic looking battlefield, real-time animations and game-play.

Games Are About Meaningful Choices to Reach a Goal

In several places Sid Meier has been quoted to define the word "game" as "*A series of meaningful choices to reach a goal*". This is a good, but not perfect definition. It tells something essential about

good game design. A good game should not burden the player with unnecessary details and decisions, but on the other hand it should also leave room for interaction and give the player a feeling that his decisions are making an impact.

Meier on Game Design

Meier's most popular games, Civilization, Railroad Tycoon and Pirates, are generally recognized as some of the highest achievements of game design. Most of these games, except the early simulator games, have not represented the latest in computer graphics. Meier usually wants to put more effort into making great game-play as opposed to fancy graphics. He likes to fine-tune his game-play to perfection and do lots of prototyping. According to him this doesn't work well with having the latest in graphics (interview from Game Design Theory & Practise):



"As I have said, in our prototyping process, things change almost up until the last minute. Most of the cutting-edge technologies are things that need to be researched from day one, and are gigantic investments in technology. And given that we're in a mode where things are changing constantly, it's practically impossible to merge those two approaches...."

...Often there's a conflict also between the functionality of the graphics and the loveliness of the graphics. A game that looks good but doesn't give you the information you need to play or doesn't give you the clarity, I think that's a wrong trade-off."

In Game Architecture and Design book he is quoted to have said:

"We need good graphics. We need good interface, we need visual clarity for our information to come across, and we need graphics to do this. But when a designer is asked how his game is really going to make a difference, I hope he has an answer that talks about game-play, fun and creativity – as opposed to an answer that focuses on how good it looks."

Give Choices to Players, Instead of Forcing a Story Upon Him

When it comes to story-telling Meier has a clear reply (from Game Design & Architecture):

"To me, a game of Civilization is an epic story. I think the kind of stories I'm interested in are all about the player and not so much about the designer. There are players that are more comfortable in situations where they're making small decisions and the designer is making the big decisions. But I think games are more interesting when the player makes the big decisions and the designer makes the small decisions. I think in some sense, games are all about telling stories. They have a story created more by the player and less by the designer, in my mind."

We have, amongst our rules of game design, the three categories of games. There are games where the designer is having all the fun, games where the computer is having all the fun, and games where the player is having all the fun. And we think we ought to write games where the player is having all the fun. And I think a story can tend to get to the point where designer is having all the fun or at least having a lot of the fun, and the player is left to tidy up a few decisions on the way, but is really being taken for a ride. And that's not necessarily bad, but our philosophy is to try give player as much of the decision making as possible."

From the Sid Meier Legacy article:

"I kind of miss the days when games were judged on their game-playing merit alone. I'm a little concerned about how far we (the game industry) are into the licensed four-page-ad marketing blitz era these days, which may be a natural evolution of the industry. But I'm always worried when we put more emphasis on glitz and production values than on the game. That's a trend that looks good for a while until you realize there's no game industry any more. If we don't have game-play, we can't really compete with other forms of entertainment because we can't do graphics as good as the movie industry and we can't make sounds as well as the recording industry. All we can do that's special to us is to be interactive. So we have to hang on to that and make sure we do a good job.

"A good game impresses you with what you're doing. I think that's a fundamental difference that I as a game designer need to recede in the background."

"There's a key difference between games and movies. In a game, the more attention that's focused on the player, the more successful it is. In a movie, you're really watching somebody else's story, so the better the story or the better the actor the more interested you are in the movie. In a game, the more interesting you are as a player, the more successful the game is. So, in a way, things that work in movies are designed to impress you with what somebody else is doing. A good game impresses you with what you're doing. I think that's a fundamental difference that I as a game design need to be recede in the background."

"The more the player is the star, the better a game you have."

I fully agree with Meier's logic.

In 1999 Meier was the second person to be nominated to the Academy of Interactive Arts and Sciences' Hall of Fame, preceded by Shigeru Miyamoto (who was the first to be nominated there). Meier is married with children and lives in Hunt Valley, Maryland.

References

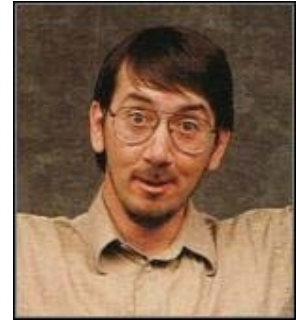
- Rouse, Richard III: Game Design – Theory & Practise (pages 20-41)
Wordware Publishing 2001, ISBN: 1-55622-735-3
- Rollings, Andrew, Morris, Dave: Game Architecture and Design
Coriolis Group 2000, ISBN: 1-57610-425-7
- J. C. Herz: Joystick Nation (page 211)
Little, Brown and Company 1997, ISBN: 0-316-36007-4
- Wikipedia article on Sid Meier
Accessed on 5th of March 2006 and available on http://en.wikipedia.org/wiki/Sid_Meier
- Wikipedia article on Railroad Tycoon
Accessed on 5th of March 2006 and available on http://en.wikipedia.org/wiki/Railroad_Tycoon
- Wikipedia article on Civilization
Accessed on 5th of March 2006 and available on http://en.wikipedia.org/wiki/Civilization_%28computer_game%29
- Terry Coleman: The Sid Meier Legacy
Accessed on 5th of March 2006 and available on <http://www.gamespot.com/features/sidlegacy/>
- Allgame.com entry on F15 Strike Eagle
Accessed on 5th of March 2006 and available on <http://www.allgame.com/cg/agg.dll?p=agg&SQL=GIHIIII3507>
- Home Page of the game FreeCiv
Accessed on 5th of March 2006 and available on <http://www.freeciv.org/>

Will Wright (1960-) - Designer of Sim City and the Sims

Almost all Will Wright's creations can be classified with the term "software toy" - a term he coined himself. He is famous of making Sim City and The Sims, the best-selling PC game product of all time.

Early Years and Love-life

William R. Wright was born on 20th January 1960 in Atlanta, Georgia, USA. He lived there until his father's death, when he was 9. He moved with his mother and family to the mother's home town, Baton Rouge, Louisiana. Wright graduated from high school at 16 and got accepted to Louisiana State University (LSU), later transferred to Louisiana Tech and then to the New School University in New York. He began his studies with an architecture degree, followed by mechanical engineering. Then he found his interest with computers and robotics. He also studied aviation and got his pilot's license. Wright spent 5 years in college, but didn't get a degree.



During a summer break from college Wright met his future wife Joell Jones, an artist born in Ruston, Louisiana on 24th July, 1948, who was also studying at LSU. According to Jones' biography she moved with her husband to Oakland, California to escape the social confinements of the South. During the period 1975-1979 she divorced. The bio doesn't mention with whom she divorced and what was the exact year, but in all likelihood that person was Wright. In any case several sources state that Wright is nowadays living with Joell Jones and his daughter, who in 2003 was 17-years old. It seems Jones has later remarried Wright and has a daughter called Cassidy with him.

Raid on Bungeling Bay

Wright bought an Apple II around 1980 and later on a Commodore C-64. Wright noticed that he spent most of his time with games so he decided making them would be a good idea. His first game was a helicopter action game called **Raid on Bungeling Bay** (Broderbund 2004) for Commodore C-64.

The game was a mediocre success in USA selling about 30 000 copies, but in Japan it sold 750 000 copies (there was no piracy as it was distributed in Japan as a ROM module).



Wright had programmed the game himself using assembly language and by trying to squeeze everything out of the hardware by making smooth full-screen scrolling. During the making of the game Wright found out that he had more fun making levels for the game using a level editor than actually making the game.

"As part of making that game, I had to create this landscape with islands, little roads and buildings for you to bomb," he said. "I found out that I was having a lot more fun with that part of it than flying around and bombing it."

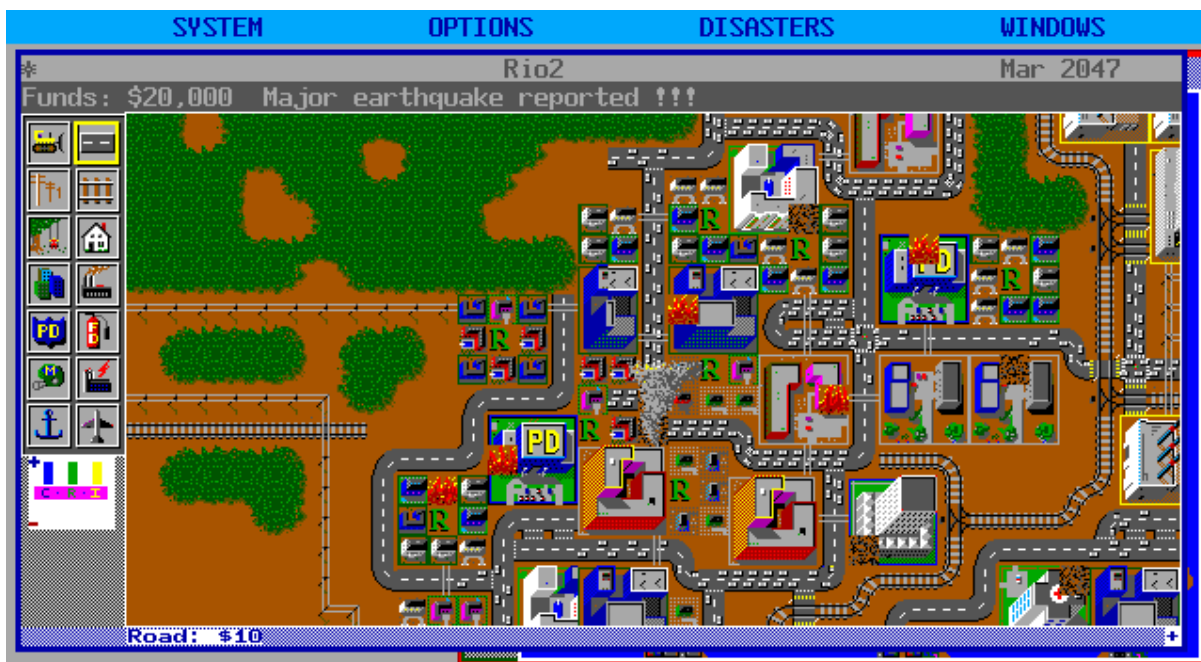
Building Cities

His interest in city and landscape design and Jay Forester's writings on system dynamics lead him to make a new game, which would later evolve into SimCity, a real-time strategy and simulation of city building. Despite the fact that Raid on Bungeling Bay had sold very well in Japan, Wright had

Will Wright

trouble finding a publisher for his game. Broderbund refused to publish it and Wright proposed it to a large number of major game publishers without any success. They didn't like it because it was so different, so unusual, not a game at all, as it lacked a clear goal and competitors.

An entrepreneur called Jeff Braun wanted to jump into the video game market, but he was not sure where to start. His friend suggested him to invite game developers for free beer and pizza. Wright calls the event "the world's most important pizza party." Braun recollects: "Will is a very shy guy, and he was sitting by himself, and I felt sorry for him," The two started talking, and Wright later showed SimCity to Braun, who was ecstatic. "He showed me SimCity, and I died. ... This was what I was looking for..." "Will kept saying that this won't work, that no one likes it. ... He thought I was reaching into a garbage can and pulling out trash." Braun finally managed to persuade Wright to go ahead with the game, and the two formed Maxis Studios a year later in Walnut Creek. In 1988 Braun managed to make a distribution deal with Broderbund, the company who had initially refused SimCity.



SimCity Finally Hits the Shelves of the Shops

Even though SimCity on Commodore C-64 had been more or less ready since 1986 it took until 1989 before the first SimCity hit the stores. SimCity was an instant success, outselling any computer game-alike product before it. It has spawned numerous sequels: **SimCity 2000** (Maxis 1993), **SimCity 3000** (Maxis 1998) and **SimCity** (Maxis/Electronic Arts 2003).

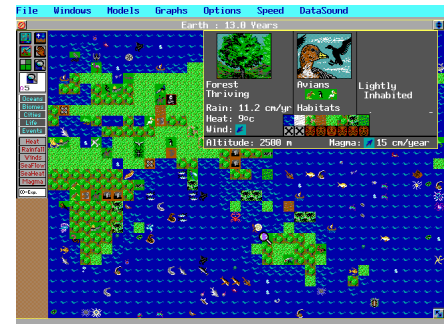
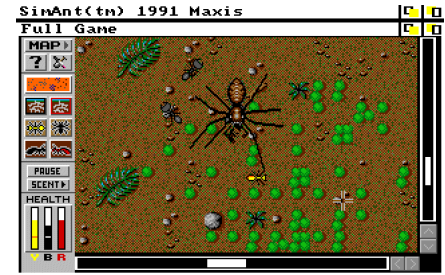


SimEarth and SimAnt

Next Wright made **SimEarth: Living Planet** (Maxis 1990), which was an ambitious simulation of the entire planet earth. It allowed the player to guide the life of the entire planet from the time when it was born to beyond when life evolves into unavoidable death and the planet becomes rubble amongst the stars. The player could vary the planet's atmosphere, temperature, land masses and place various forms of life and see them alive. The main goal of the game was to evolve sentient life and advanced civilization. The game was not a big hit. Wright himself was proud of the game design, but disappointed with its game-play:

"It wasn't a terribly fun game. It's actually a very nice model, and we did a lot of research of the current climatic models, and we still never seen anyone do an integrated lithosphere, and atmosphere together like that..."

I started realizing that you can roughly look at all of our Sim games and divide them into one of the two categories: the economic ones and biological ones. And, in general, the economic ones have always done better."



Wright classifies SimCity, **SimTower** (Maxis 1994), **SimCity 2000** (Maxis 1993), **The Sims** (Maxis/Electronic Arts 2000) and **the SimFarm** (Maxis 1993) as economical ones and **SimAnt** (Maxis 1991), **SimEarth** (Maxis 1990) and **SimLife** (Maxis 1992) as biological games.

"I think it has a lot to do with how much control you have over the systems. The biological systems tend to very soft, squishy things that you can do something to, and then it kind of reacts and adapts. It's not really clear what you did to it, because it'll then evolve around you. Whereas in the economic ones you have much better credit assignment. When something goes wrong, you can say "Oh, it's because I forgot to do this. I should have bought one of those". I think people can reason through their failures and assign credit to the failures more easily with the economic models... so in SimEarth people would be playing all of sudden their planet would freeze up and they'd have no clue why it happened. And I, as the simulation engineer, couldn't tell them either!"

I think this is very important observation. Players find it very frustrating to lose and not understand why they were losing.

Nobody Wants a Doll House Life Simulator

After working on **SimAnt** (Maxis 1991), a simulation of an ant colony, Wright began to work on a house life simulation - a sort of virtual doll house. David Crane had already made a game called **Little Computer People** (Activision 1985), which featured a guy living with his dog in a house viewed from side profile. It is difficult to know how much Little Computer People served as inspiration to Wright. He mentions that he got the inspiration from 2 books, an architecture book by Chris Alexander called "A Pattern Language" and a media book "Understanding Comics" by Scott McCloud. From the latter book he understood the concept of levels of abstraction.

The idea of the doll house game also came partially from the fact that Wright's own home in Berkeley-Oakland was burned in a fire during 1991. He began to observe the order of how he reacquired items for his new home: first refrigerator, then the stove and so on.

In 1993 he got the prototype of his game called "Home Tactics: The Experimental Domestic Simulator" ready. He pitched the game idea to Maxis executives during a focus group. Nobody in

the focus group liked Wright's idea. Among the four games presented to Maxis executives, Home Tactics was the only one which was rejected.

Wright was working also on another project, which was a simulation of the most famous zeppelin in history: Hindenburg and its destruction in Lakehurst. Wright and his team had developed many theories why the Hindenburg exploded, but he decided to give up the game, because there was no way to make the game without Nazi associations. Hindenburg had a swastika on its tail and its construction was financed by the Nazis.

In 1995 Maxis went public. The SimCity sequel, SimCity 2000, was still selling strongly and the company got \$35 million in investors' money. But even this didn't help the company. In 1996 there was no sequel to SimCity and the sales started to dry up. The company had spread its limited resources to make 4 games, instead of just doing one game well: **SimTunes**, **SimCopter**, **SimPark** and **Full Tilt Pinball**. Amazingly all the games shipped for Christmas 1996, but they were rushed products, which had not been tested well.



One homosexual programmer, who had been working on the SimCopter project, objected to the use of female characters as objects of affection. He programmed a "hidden" feature to the game termed "muscle boys in swim trunks". His idea was to make them appear rarely, but due to a badly implemented random number generator, the gay muscle boys started to appear often and to start to kiss each other. After the discovery of this little feature, the programmer was fired from Maxis.

Only Will Wright's SimCopter ended up selling well of those 4 games. SimCopter was a full 3D game. So everybody expected that the next SimCity would also be full 3D, unlike the previous SimCity games, which had used isometric 3D. The management of Maxis demanded SimCity 3000 to be fully 3D, but it was not so easy to implement. Maxis demonstrated an embarrassing version of SimCity 3000 in E3 Expo 1997. Everybody knew the Sim brand would be tarnished if the game would be published in such a state.

Maxis needed a more steady financial state and better management. In June 1997 Electronic Arts came to the rescue by buying Maxis. Will Wright was finally given resources and rights to continue his HouseTactics project. The project was renamed The Sims.

The Sims

The Sims was finally published by Electronics Arts in 2000, years after Wright got the idea for his Home Tactics game.

In the Sims the player controls the life of a single family, living in a house. Each of the characters, called *Sims*, has a different personality and 8 basic needs: hunger, comfort, hygiene, bladder, energy, fun, social and room. The Sims can go to work to earn money to pay their bills and the children can go to school to educate themselves, but this part in the game is skipped. The Sims just walk out of their doll house and appear back later on. The time of the game can be fast-forwarded in 3 different speeds. The Sims has often been criticized that its model of human behavior is very crude and the characters themselves are not very smart. If their bladder is full, they will urinate on the nearest floor, even when the toilet is vacant, unless the player clicks the mouse and guides them to go to the toilet. Many people, include myself, dislike the amount of utterly boring micromanagement in the Sims. You need to feed the Sims, clean the house, empty the garbage, pay

the bills and entertain them by making them watch TV and so on. It is too much like real life. Despite all this criticism the Sims has become the most successful PC game of all time with 6.8 million units sold.

Sims has been especially popular among female players. This is perhaps due to the fact it is basically a virtual doll house and doll house and playing with dolls has been traditionally much more popular among girls than boys. Sims is non-violent so parents are eager to buy it even for small children.



The original Sims was followed by a vast array of Sims expansion packs, allowing the Sims to have more objects and more choices of where to go. Here is just a brief list of them:

- **The Sims: Living Large** (EA 2000), more objects and events
- **The Sims: House Party** (EA 2001), party-related content
- **The Sims: Hot Date** (EA 2001), more romantic encounters between sims
- **The Sims: Vacation** (EA 2002) or **The Sims: On Holiday** (Europe), sims can go to holiday resorts
- **The Sims: Unleashed** (EA 2002), addition of pets to the sims
- **The Sims: Superstar** (EA 2003), allows sims to become stars
- **The Sims: Makin' Magic** (EA 2003), use of magic and spells

The original game and the expansion packs have also been packed in various compilations.

In 2002 **The Sims Online**, a massively online persistent virtual world based on the Sims game, was launched. Wright had been supervising the project. The Sims Online got lackluster reviews and was a not success. Many people complained it was just like a big chat room with too few people in it.

On 14th September 2004 The Sims 2 (Maxis/Electronic Arts 2004) was released. It replaced the original's isometric graphics with full 3D. In Sims 2 the characters develop through 6 stages: baby, toddler, child, teen, adult and elder. Sims can now get pregnant and inherit qualities from their parents. The game was a big success. Sims 2 has also been complemented with several expansion packs:

- **The Sims 2: University** (EA 2005), adding a "young adult" stage, when a Sim can learn and live college campus life
- **The Sims 2: Nightlife** (EA 2005), similar to Sims: Hot Date, including nightclubs and other places where sims can meet
- **The Sims 2: Open for Business** (EA 2006), allows sims to operate businesses



Each of the expansion packages has been a best-seller, reaching the TOP 20 best-selling game of the year list. The Sims has been ported to various platforms including Macintosh, PlayStation 2, Xbox, Gamecube, DS, PSP and Game Boy Advance. The total sales of Sims series is 58 million and growing. It is ironical that in the first place the focus group and the executives at Maxis were certain that nobody would want to buy such a product!

Asperger-alike Personality

Wright seems to possess an Asperger Syndrome-like personality. In an interview by Matthew Yi of San Francisco Chronicle, published on 3rd November 2003, he said:

"I was obsessive as a kid. I would usually get very obsessed with some subject or area of interest for six months or a year, and just totally learn everything I (could) about it."

Will Wright and Maxis are currently developing Spore, an evolution game, where the player guides a single-celled species across many generations into more complicated intelligent life.



References

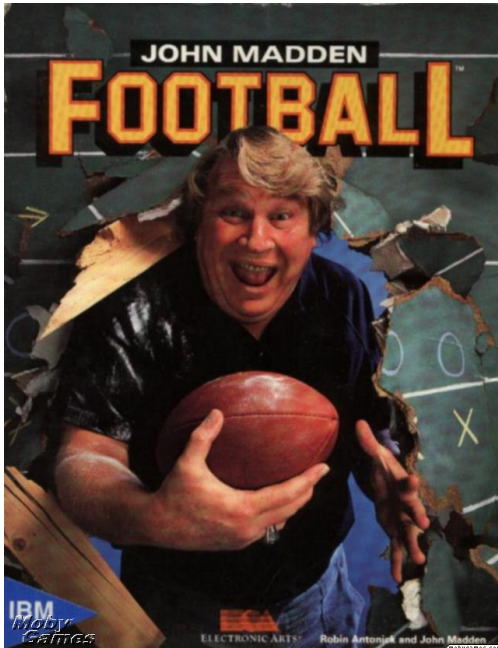
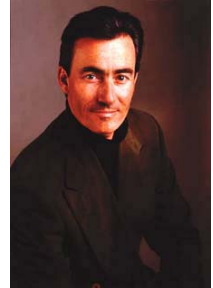
- Rouse, Richard III: Game Design – Theory & Practise (pages 434-471) Wordware Publishing 2001, ISBN: 1-55622-735-3
- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition) (pages 262-265) Osborne 2004, ISBN: 0-07-223172-6
- Heather Chaplin and Aaron Ruby: Smartbomb (pages 126-155) Algonquin Books of Chapel Hill 2005, ISBN: 1-56512-346-8
- Wikipedia entry on Will Wright
Accessed on 5th of March 2006 and available on http://en.wikipedia.org/wiki/Will_Wright
- Wikipedia entry on The Sims
Accessed on 5th of March 2006 and available on http://en.wikipedia.org/wiki/The_Sims
- Wikipedia entry on Spore (the game)
Accessed on 6th of March 2006 and available on http://en.wikipedia.org/wiki/Spore_%28game%29
- Biography of Joell Jones
Accessed on 5th of March 2006 and available on <http://www.joelljones.com/text/bio.html>
- Matthew Yi: Profile: Will Wright Unsimulated Success, Simcity creator's Games Are About Building Cities, Not Blowing Them Up
San Francisco Chronicle 3rd November 2003
Web version accessed on 5th of March 2006 and available on <http://www.sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2003/11/03/BUGD42O8JT1.DTL&type=business>
- David Smith: Inside the Mind Of Millionaire Geek Who Turned Life into a Game
Guardian Magazine, 5th September 2004
Web version accessed on 5th of March 2006 and available on <http://www.guardian.co.uk/computergames/story/0,11500,1297547,00.html>
- Geoff Keighley: The Endless Hours Of The Sims Online
Web version accessed on 5th of March 2006 and available on <http://www.gamespot.com/gamespot/features/pc/simsonline/1.html>

Trip Hawkins (1953-) – Founder of Electronic Arts, 3DO and Digital Chocolate

Trip Hawkins is one of the world's major game entrepreneurs. He is the founder of Electronic Arts, The 3DO Company and Digital Chocolate, all important game companies. He has also contributed to the design of football strategy games, most famously John Madden Football.

Early Years

William M. "Trip" Hawkins III was born in 1953. He grew up Pasadena, California. He spent his childhood playing games and in high school he designed board games. In 1971 he created a program called **Accu-Stat**, which simulated NFL football. It used dice and allowed the realistic use of strategy and player characteristics and other statistics. He released the Accu-Stat commercially in 1973. It was not a success, but he learned from his mistakes.



He went to study at Harvard in 1972. During his college years he created another NFL simulation, which he used to simulate the 1974 Super Bowl. His program predicted Miami Dolphins win of 23-6. The actual game was played in Houston, Texas and the end result was Miami Dolphins winning 24-7 versus the Minnesota Vikings.

Later on he used many of the ideas in **John Madden Football** (Electronic Arts 1988), which he designed. John Madden Football is the longest running and most successful football strategy game.

At Harvard Hawkins made his own interdisciplinary major: strategy and applied game theory, combining social science and computer courses. In 1972 he decided that he would someday make an entertainment software company. He knew the time wasn't ready yet, as it took time for technology to get into people's homes. In 1975 he set a goal for himself to form the company in 1982.

Hawkins went to continue his studies at Stanford, doing an MBA. After his graduation he went to work for Apple. In 1978 Hawkins became Apple's 68th employee. He was director of market planning and research. He learned a lot about "small company thinking big" at Apple from Mike Markkula and Steve Jobs. During his Apple years Hawkins saw a demonstration of **VisiCalc** by Dan Bricklin and Bob Frankston at **Personal Software**. However Apple management turned down Personal Software's demand to get \$1 million worth of Apple stock for exclusive rights to VisiCalc. VisiCalc became the best-selling Apple program of the time and it was the precursor of modern spread-sheet programs like Microsoft Excel. Hawkins saw the future was in software.

Birth of Electronic Arts

In February 1982 Trip Hawkins had a meeting with Don Valentine of Sequoia Capital about Hawkins' new venture, **Amazin' Software**. Valentine was a famous venture capitalist, who had also helped Steve Jobs and Steve Wozniak to found Apple Computer. Valentine convinced Hawkins to leave Apple and allowed him to use Sequoia Capital's spare



office space as the starting premises of the new company. On 28th May Hawkins founded the company with a personal investment of about \$200 000 dollars. By December 1982 he had managed to raise \$2 million venture capital from 3 different venture capital sources: Kleiner-Perkins, Sequoia and Sevin-Rosen. His first 3 employees were Rich Melmon, Dave Evans and Pat Marriott. The latter two were his former colleagues from Apple.

Hawkins wrote a business plan in August 1982. The business plan suggested the name “SoftArt”, implying that future software of the company would be some kind of art. The makers of VisiCalc had made a company called Software Arts. Hawkins called Dan Bricklin and Bricklin preferred that they would use a different name than SoftArt. In October 1982 Amazin' Software had a meeting to come up with a better name for the company. Bing Gordon proposed Electronic Artists, similar to United Artists, the name of a movie production company. Tim Motts proposed **Electronic Arts (EA)** and that name was approved by all.

According to the 1982 business plan EA's goal was to grow into a billion dollar company in 6 years. The second goal was to “make software that makes a personal computer worth owning”. Electronic Arts were the first games publisher to reach the billion dollar goal, but it took twice as long as projected; about 12 years.

EA was the first game publisher to treat its developers like rock stars. Most publishers of that era gave almost no credit to the makers of the game. Atari didn't even allow the game makers to put their names into games fearing that competitors would steal their most talented workers. Hawkins wanted beautiful cover arts for his games, like record album covers. One example of them is Bill Budge's **Pinball Construction Set** (EA 1983). He used a brand new San Francisco-based advertising agency **Goodby, Berlin and Silverstein** to design the game package covers.



Hawkins quickly managed to attract lots of exceptionally talented developers to work for Electronic Arts, including Bill Budge, Dan Bunten, John Freeman and Anne Westfall. By May 1983 EA had shipped 6 games: **Archon**, **Pinball Construction Set**, **M.U.L.E.**, **Hard Hat Mack**, **Axis Assassin** and **Worms?**. The first three are considered as milestones in the history of computer games.

First Ten Years of Electronic Arts

Electronic Arts was a serious software company from the start, but in order to keep things from not becoming too serious the company had developed a habit of regular nerf ball fights. The office had nerf balls in a fruit bowl, along with ordinary fruits. On many evenings someone switched off the light and there was total darkness except for emergency lights and the light from the monitors. Everyone would be armed with 5 nerf balls and any person who has struck by a flying ball was out of the game.

The company had many successful years under the rule of Trip Hawkins. At Apple he noticed that the most creative people



Trip Hawkins

didn't like to work on the staff. He created a model similar to Hollywood studios. Instead of hiring all the workers as staff for EA, he set them to work independently. EA provided them with advance payment and royalties and treated the top game developers like artists. During the 1980s many of the famous EA advertisements were born, like "We See Farther", "Can a Computer Make You Cry" and "Bill Budge wants to write a program so human that turning it off would be an act of murder".

In 1984 Trip Hawkins hired Larry Probst to work as vice president of sales.

Hawkins created Electronic Arts Affiliated Labels, which was modeled after the distribution model used in the music record industry. Other game companies, like Lucas Arts, became EA Affiliated Labels, meaning that EA distributed their games. EA hired more sales representatives and its distribution system expanded. The distribution business grew to be one third of EA's total earnings. During most of the 1980s EA produced a diverse range of games for all the popular home computers, including PC, Commodore 64, Commodore Amiga, Atari 800 series, Atari ST and Apple II, but not for video game machines. The business plan of EA stated: *"stay with floppy-based computers only"*.

The success of Nintendo during the latter half of 1980s was tremendous. Many companies flourished by making games exclusively for Nintendo.

"The best companies and best programmers were making computer games", one of Hawkins designers said (According to Sheff's Game Over book), "But the Nintendo player didn't care about the sophisticated leaps we were making on computers - the frame rate of the images or incredible sound. They just wanted fun. It was like we were making gas guzzlers and the Japanese were making subcompacts. Our competitors saw the writing on the wall and started making subcompacts".

Electronic Arts was profitable every year from 1985 to 1994. The over-expansion of their international business in 1987 lead to a quarter-one loss in 1988.

Hawkins made a plan to enter the profitable console market by aggressively supporting Sega Genesis. To raise the capital EA went public in August 1989 with a share price of \$8. Even though EA didn't have much action games at that moment, and most of the console games were action games, the big gamble paid off. Within a year the sales of computer games dropped to 66% and the trend continued after that. Soon EA started to publish games for both Sega Genesis and also its competitor Nintendo Entertainment System and SNES. In August 1991 the stock of EA had dropped to an all-time-low of \$6 per share. The stock finally took off in 1992 and 1993, when investors realized how good the plan was.

3DO

In autumn 1991 Hawkins left EA to form a new company, called the **3DO Company**, to create a new video game machine utilizing CDROM as storage. Larry Probst took over the control of daily management of EA, but Hawkins still remained the chairman of the board at EA until July 1994. Hawkins' vision was to create a video game system, which would be more powerful than computers of that era and capable of more fancy audio-visuals. The CDROM was still a new add-on on computers at that time and very expensive,



so most people didn't have one. Of course it offered superior capacity compared to floppy disk, which could only hold from between a few hundred kilobytes to 1.44 Megabytes, while a CDROM disc could hold up to 650-700 Megabytes.

Instead of the new company itself manufacturing 3DO game consoles they formed a partnership of 7 other companies, including Matsushita, AT&T, MCA, Time Warner and Electronic Arts. Many different companies could manufacture the consoles and sell them under the 3DO name. The 3DO Company collected a royalty on each console sold and a \$3 royalty on each game manufactured. The \$3 per game manufactured was low compared to manufactures like Nintendo and Sega, who demanded more when making games for their consoles. The console was launched in October 1993 and it received good attention from the media and was part of the multimedia hype of that time. At its release 3DO was also the most powerful home video games machine on the market. Unfortunately it was also the most expensive, costing about \$700. It had a couple of good games, but overall the quality of the games was considered low. 3DO didn't sell well and in 1994 Sony entered the market with PlayStation, which had more powerful hardware and a cheaper price tag of \$299. The various 3DO machines sold a total of 1.5 million units world-wide, while Sony has sold over 100 million PlayStation units to date.

In Inc.com "26 Most fascinating entrepreneurs" Hawkins said about 3DO:

"Chip manufacturing is expensive and political. I should have known a company with deep pockets like Sony could pull the rug out from under us."

In hindsight the message seems to be not to make a game console too expensive for your consumers. Many video game console manufacturers are known to sell their consoles even under manufacturing costs in order to get as many people to buy them and then to make big profits by selling lots of games (through royalties from each of them) and over-priced peripherals like additional controllers, memory cards, cables etc. 3DO could not go this way as their manufacturing and sales of the consoles was outsourced.

3DO still had plans make another entry into the video game market, code named **M2**. But as financial difficulties continued they ended up selling M2 rights to Matsushita and changed to operations as a game publishing company for PlayStation, other game consoles and PCs in 1996. They acquired **Archetype Interactive**, **Cyclone Studios** and **New World Computing**. The biggest hits of 3DO as game publisher were the **Army Men** series of games, featuring little green men (similar to children's plastic toy soldiers) and the **Heroes of Might and Magic** games series, which were developed by New World Computing. 3DO Studios developed **Meridian 59**, which was one of the first massive multi-player role-playing games, published in September 1996. Meridian 59 featured first person graphics similar to Doom. The game is still developed and run by **Near Death Studios**.

3DO ran into even deeper financial troubles and it filed chapter 11 bankruptcy in May 2003. The intellectual property of 3DO Company was sold to other game companies like Namco, Ubisoft, Microsoft and Crave and Hawkins himself paid \$405 000 for rights to some older game brands and an internet patent portfolio.

Digital Chocolate and Sumea

In 2003 Hawkins founded **Digital Chocolate**, a game publisher based in San Mateo USA. Digital Chocolate is focused on making and publishing all sorts of entertainment products, but mostly games, for mobile phones.

In June 2004 Digital Chocolate announced that it had bought **Sumea Interactive Ltd**, a Finnish



developer and publisher of games for mobile phones. The Sumea brand still exists and most of the games published by Digital Chocolate are made in Helsinki, Finland in Sumea Studios. Many Sumea games, like **Fantasy Warrior 2** (Sumea 2004), have won prizes and it is widely considered as one of the leading developers of downloadable Java games for mobile phones.



Fame

In 2005 Trip Hawkins became the eighth person to be selected into the Academy of Interactive Arts and Sciences' Hall of Fame.

Social Experience Means More than Technical Fidelity

During his years in EA Trip Hawkins tried to use technology to make the most realistic games possible. He thought that consumers wanted more and more realism from games. He left EA to form 3DO, because he saw the CDROM as a path to even higher fidelity. In a USA Today Interview (11th December 2005) Hawkins noted *"Madden Football might be astoundingly realistic, yet it's played by only about 5% of the people who watch the Super Bowl.... Participants in fantasy leagues — a very low-fidelity activity based on statistics from real football games — outnumber video game football players 3 to 1."*

"I realized I had been doing the wrong thing for 30 years... I took the wrong branch. I thought it was all about fidelity, but what people want is the social aspect. There's a loneliness we feel in our society. We want to grab onto what we've lost."

Hawkins' epiphany these days is: If you're going to make games, make them more social and mobile. Hawkins believes there is big future in quite low-fidelity social games – games which are not technically very flashy, but ones which help people to socialize.

Dave Evans, a technology consultant who has known Hawkins for more than 25 years, describes him as philosophical yet pragmatic. *"He'll build an idea of how technology will affect the world and try to get out front of the wave before it forms"*, says Evans

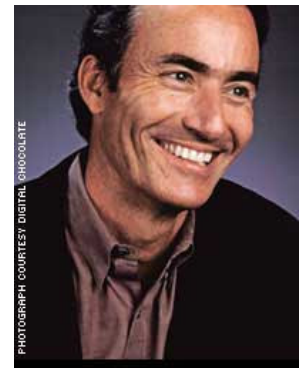
"optimism is essential" – Trip Hawkins.

He commented about his old friends at Electronic Arts also entering the mobile game market:

"I expect them to enter more directly either this year or next, but rather than fight with them for market share, we are trying to blaze new trails. It's like being an explorer who discovered North America and then found out, hey, there's South America and Antarctica, too."

In Mac Observer 24th October he said:

"I think people who have cell phones don't realize it's a computer now--that it can do a lot more than just be a telephone. Maybe people feel a little embarrassed about indulging themselves in a few moments of instant gratification. But when people are away from home, this mobile computer is the only one they've got--and they spend a lot of time waiting around. I think you can serve that



Company: Electronic Arts and Digital Chocolate Location: San Francisco Industry: Video games

market with a lot of different things. You can get people accustomed to the idea that's it is OK to give themselves permission to have a little fun. And in many cases it can be something productive, educational, or something informative...it doesn't have to be, strictly speaking, playing a game."

References

- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition) (pages 164-177, 333)
Osborne 2004, ISBN: 0-07-223172-6
- Sheff, David: Game Over- Press Start to Continue (page 226-235)
Game Press 1999, ISBN: 0-966 9617-0-6
- Winnie Forster: The Encyclopedia of Consoles, Handhelds & Home Computers 1972-2005
Gameplan 2005, ISBN: 3-00-015359-4
- Petri Kuittinen's personal email correspondence with Trip Hawkins in March 2006
- William Hunter: The Dot Eaters: Player 4 Stage 4: But is it Arts?
Accessed on 16th March 2006, available on:
<http://www.emuunlim.com/doteaters/play4sta4.htm>
- Wikipedia entry on Trip Hawkins
Accessed on 6th March 2006, available on:
http://en.wikipedia.org/wiki/Trip_Hawkins
- Wikipedia entry on Electronic Arts
Accessed on 6th March 2006, available on:
http://en.wikipedia.org/wiki/Electronic_Arts
- MobyGames entry on Trip Hawkins
Accessed on 6th March 2006, available on:
<http://www.mobygames.com/developer/sheet/view/developerId,5312/>
- Kevin Maney: Tech Guru Dials into Gaming's Social Side
USA Today 11th December 2005
Accessed on 6th March 2006, available on:
http://www.usatoday.com/tech/gaming/2005-12-11-exec-suite-hawkins_x.htm?csp=34
- IGN article on 28th June 2004: Digital Chocolate So Big! (purchase of Sumea)
Accessed on 6th March 2006, available on:
<http://wireless.gamespy.com/wireless/pitfall-the-lost-expedition-jungle/526883p1.html>
- Bryan Chaffin: Apple Alumnus Trip Hawkins: Cell Phones Today Are A Lot Like An Apple II
The Mac Observer 24th October 2003
Accessed on 6th March 2006, available on:
<http://www.macobserver.com/article/2003/10/24.4.shtml>
- Digital Chocolate Home Page
Accessed on 6th March 2006, available on:
<http://www.digitalchocolate.com/>

Toru Iwatani (1955-) – Designer of Pac-Man

Toru Iwatani is a Japanese Game Designer for Namco. He is most famous of creating Pac-Man, the most successful arcade game machine and the first famous game character.

Early Years

Toru Iwatani was born on 25th January 1955 in Tokyo, Japan. He graduated from Tokai University in 1977 with a degree in electrical engineering. In the same year Iwatani joined Namco Ltd, a Tokyo-based publisher and maker of video games.

Iwatani liked pinball games. Atari's arcade game called **Breakout** (Atari 1976), designed and made by Steve Jobs and Steve Wozniak, was a huge hit and then it inspired Iwatani to combine the game-play of Breakout and pinball. He created his first video pinball game called **Gee-Bee** (Namco 1978).



A year later he made two more similar video pinball games called **Bomb-Bee** (Namco 1979) and **Cutie-Q** (Namco 1979)

Pac-Man

Space Invaders (Taito 1978), designed by **Tomohiro Nishikado**, was the first block-buster video game, which really bought the arcades into general people's knowledge. It caused a national shortage of yen coins in Japan. In USA young people stole money and skipped school to play that game. It was followed by other shoot'em'up games located in space.

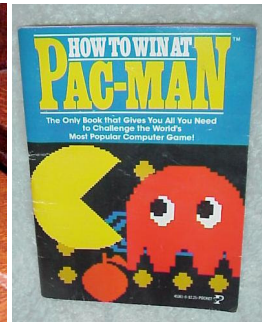
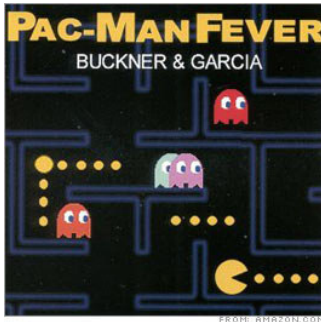
Instead of making a similar game, Iwatani wanted to create something different, a game which would appeal to both women and men. He got some inspiration from Japanese folk-tales.

With a help of help of four other he completed the game, which we all know as **Pac-Man** (Namco 1980). It took a year and five months to make the game from concept to a finished product. The game's original name in Japanese was **Paku-Paku taberu**, a Japanese slang word for munching - a term used to describe the motion of the mouth opening and closing while one eats. The character's name was called **Paku-man**. Pac-Man soon became the most popular coin-operated video game of all time, even surpassing Space Invaders in popularity and it has spawned more sequels than any other game.

When the game was imported to the USA by Midway, it was first called **Puck-Man**, but in fear of vandals changing the letter P into F, they decided to rename it Pac-Man.



Pac-Man was one of the first games to have a truly recognizable original game character and this character, became so popular that it was printed on coffee mugs, T-shirts and a hit-song **Pac-Man Fever**, was made and even a children's animated Pac-Man series. Iwatani often likes to tell a story that the shape of pizza with one slice removed inspired him to make the Pac-Man character. But he has admitted that the story is only half-true. In Japanese the character for mouth (kuchi) is a square shape. Iwatani decided to make it more rounded. At some point there was the temptation to add more features to the simple Pac Man shape, including eyes. But then somebody else wanted to add glasses and a moustache. Iwatani saw there was no end to it and decided to keep the form of Pac-Man simple.



Career after

Pac-Man

After making Pac-Man, Iwatani made a game called **Libble Rabble** (Namco 1983). Iwatani himself considered Libble Rabble to be his best creation, but the game was never released outside of Japan, because Namco considered it to be too weird for a non-Japanese audience.

Later Iwatani was appointed head of division and he has later been involved in the creation of **Ridge Racer** and **Time Crisis** games.

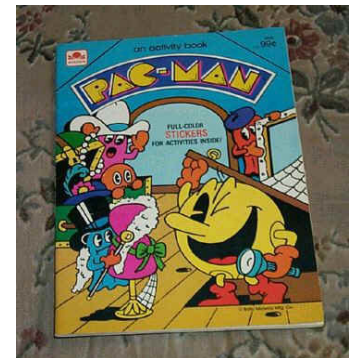
The Qualities of Good Game Designer According to Iwatani

In the book "Programmers at Work" by Susan Lammers, the interviewer asked Mr. Iwatani:

What kind of skills or philosophy must a game designer have to be successful?

Iwatani's reply was:

You must understand people's souls (kokoro) and be creative enough to imagine things that can't be thought or imagined by others. You must be compelled to do something a little bit different than the rest of the crowd and enjoy being different. You must also be able to visualize the images that will make up the game, and you shouldn't compromise with the first easy idea that comes to mind. In the last analysis, you must enjoy making people happy. That's the basis of being a good game designer, and leads to great game design.



I think his reply summarizes most of the important characteristics of a game designer.

References

- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition) (page 368)
Osborne 2004, ISBN: 0-07-223172-6

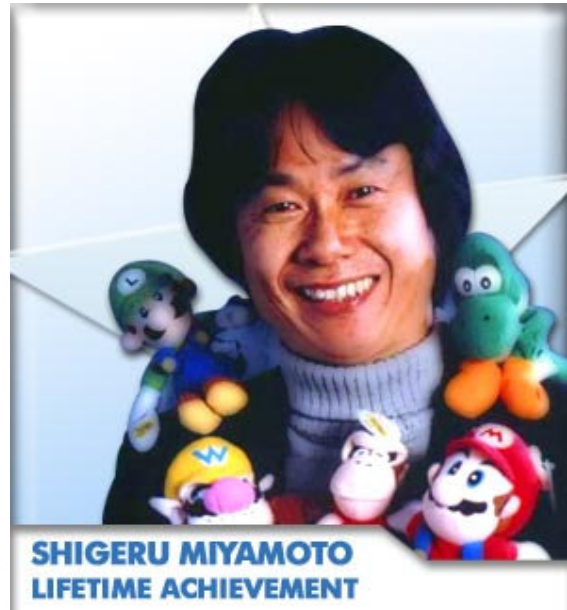
- Chris Kohler: Power UP - How Japanese Video games Gave the World an Extra Life (pages 20-24)
Brady Games Publishing / Pearson Education 2005, ISBN: 0-7440-0424-1
- Pac-Man - The History of the Game
Accessed on 12th March 2006, available on
<http://www.worldofkitsch.com/interactive/games/pacman.html>
- Soylent Communications: Fact sheet about Toru Iwatani
Accessed on 4th March 2006, available on <http://www.nndb.com/people/137/000041014/>
- KLOV entry on Puck-Man or Puckman
Accessed on 12th March 2006, available on
http://www.klov.com/game_detail.php?letter=P&game_id=9149
- Alexis Bousiges (maintainer): Arcade History: List of games Toru Iwatani has worked on
Accessed on 12th March 2006, available on
http://www.arcade-history.com/history_database.php?page=person&name=Toru+Iwatani
- Susan Lammers: Programmers at Work
Harper and Row 1986, ISBN: 0914845713
web version of Iwatani's interview access on 4th March 2006 and available at
<http://www.geocities.com/SiliconValley/Heights/5874/iwatani.htm>

Shigeru Miyamoto (1952-) – Designer of Mario, Donkey Kong, Zelda and Many Others

Shigeru Miyamoto is widely considered as the most successful and brilliant video game designer. His most famous creations include Donkey Kong, Mario and Zelda.

Childhood

Shigeru Miyamoto was born on 16th November 1952 in Sonebe, near Kyoto in Japan. He grew up in an environment without television and spent lots of time exploring nature. This gave him lots of time to imagine things and the influence of the grassy hills, rice fields, canyons and waterways is obvious in his many game worlds. One day he stumbled upon a hole in the ground, which was an opening to a cave. As a small boy he had to gather lots of courage before entering this cave with just a lantern. He ventured deep enough to see it lead to another section of cave. This was an unforgettable event for a young man and many of his games also feature caves to explore. Since a young age Miyamoto wanted to make something to astonish the world. It would not matter what it was, as long as he could share it with others. He considered the career of a puppeteer and painter and made toys as an outlet to his creativity.



Education

In 1970 he went to study industrial design at the Kanazawa Munici College of Industrial Arts and Crafts. He attended lessons only half of the time and it took him a full 5 years to graduate. He didn't want to jump into a career he didn't like. In 1977 he met his father's old friend Hiroshi Yamauchi, who ran a toy company called Nintendo. Miyamoto was just 24 and after the first meeting with Yamauchi he was asked to give ideas for toys. Miyamoto returned with a bag full of toys and his portfolio was so good that Yamauchi gave him the position as Nintendo's first staff artist – even though at that moment Nintendo didn't actually need a staff artist.



The Birth of Donkey Kong

In 1980 Yamauchi asked Miyamoto what he knew about video games, which were a new thing at the time. Miyamoto had loved these things and he began to make his first video game design. It involved a story, where a giant ape had kidnapped a girl and a funny-looking thick little jumpman character had to rescue the girl by avoiding obstacles which the giant ape was throwing at him. Miyamoto looked in a dictionary an English translation for the word "stubborn" and found the word "donkey", the big gorilla was of course "kong". So he decided to call his game **Donkey Kong** (Nintendo 1981). The game became a huge international hit and the jumpman character was later named Mario. Since his first game Mr. Miyamoto has designed and produced one hit after another for Nintendo.

Zelda, Super Mario Bros and other Games

In 1984 Miyamoto got his own department at Nintendo, called Joho Kaihatsu (Entertainment-team) or the R&D4 team. With this team he has made **Legend of Zelda** (Nintendo 1987) and the **Super Mario Bros** (Nintendo 1985) series of games. Miyamoto has risen to the position of creative leader of the company and became perhaps the most loved and recognized game designer in the world. His most famous creations include: **Mario Party** (Nintendo 1997), **Super Smash Bros** (Nintendo 1999), **Mario Kart** (Nintendo 1992), **Star Fox** (Nintendo 1987), **Waverace**, **Yoshi Island**, **Paper Mario** and **Mario Golf**.



Screenshots from Legend of Zelda, Mario Kart 64 and Super Smash Bros.

Perfectionist

Miyamoto has said he rather likes to create new trends, and not to follow them. When he was asked, “*what is the secret behind a good game?*” he replied: “*You have to lay down much work on the game and be willing to let the private life suffer a bit too*”. As a perfectionist Miyamoto doesn’t want to publish his games until he feels they are ready. His games are always very well-tested and polished, making him sort of equivalent of Disney in the business of video games. Miyamoto is also very attached to his game characters and is always worried when other people work on them. If he could just squeeze enough time, he would want to supervise all projects involving characters created by him.

Personal Life

Miyamoto also met his love at Nintendo, marrying a woman called Yasuko, who worked in the company’s administration department. After their marriage, Miyamoto and Yasuko bought a small house near Nintendo so that Miyamoto could walk or ride bicycle to work. Together they now have 2 children. During his limited free-time Miyamoto likes to play softball, swim, ski and play guitar and piano. Miyamoto’s favorite past-time includes breeding dogs and this influence is clearly seen in his **Nintendogs**, a game series, in which he is also involved.

Design for Character's Appearance First

May 1991, Mario Mania Players Guide interview:

Q. How and when did you get started in the video game business?

A. I started working at Nintendo Co. Ltd. in Kyoto Japan in 1977 as a designer. At first I designed characters and artwork for arcade games. But in 1980, I directed the design and art work for Donkey Kong in which Mario first appeared.

Question: What were some of the things you thought about when you created Mario?

Miyamoto: We had to work under technical constraints including the number of pixels and number of colors the Famicom can display. There are many reasons why we drew him the way we did. We gave him a mustache rather than a mouth because that showed up better. We gave him a hat rather than hair because that looked better, too. Mario wears overalls because that shows the movement of his arms, and he's wearing white gloves because the white contrasts better with the colored backgrounds. These are the technical reasons we made him look the way he does.

Question: So from there you decided to make him a plumber?

Miyamoto: We wanted him to be a character that works very hard. Also, we wanted him to be shorter than enemy characters and the princesses he rescues. Based on these factors, we decided on his appearance. We always draw the dot character first, and from that, we make other art work, for the package for example.

I think this outlines the problem with current game characters: they are mostly just empty shells, easily recognized appearances, rather than fully fledged personalities. Mario, the most well-known game character, was made with the consideration of appearance first and personality later. For player-controlled characters the lack of an interesting personality is not a big problem as the player himself makes up the personality with his own actions. But for computer controlled characters, bland characters like this are all too common and are especially evident when they are transferred to the film screen. Most films based on games have been both financial and critical failures. I think this is mainly because most game characters are just 2-dimensional images and not interesting personalities themselves.

Miyamoto's Dislike towards Role-Playing Games

September 14th 2003, Nintendo Official Magazine (UK) interview:

Question: What about RPG's? Nintendo has traditionally not done many of them... basically it's been Earthbound and Super Mario RPG, but these have been very popular among fans. What was your involvement with them? And what do you like or dislike about the RPG formula?

Miyamoto: I personally have a fundamental dislike of the RPG system. But there are so many people who do like it and there are certain types of games for which that system is perfectly suited. I think that with an RPG you are completely bound hand and foot, and can't move. But gradually you become able to move your hands and legs.... you become slightly untied. And in the end, you feel powerful. So what you get out of an RPG is a feeling of happiness. But I don't think they're something that's fundamentally fun to play. With a game like that, anyone can become really good at it. With Mario though, if you're not good at it, you may never get good.

I think this is a very good observation. For me most Super Mario Bros. and Zelda games have been way too difficult. I lack the ability to time my button presses and playing a game like **Super Mario Bros** or its sequel **Super Mario Bros 64** on Nintendo 64 - no matter how brilliant the reviewers will say they are - sooner or later becomes a torture for me. Miyamoto probably hasn't played many role-playing games made outside Japan. His words ring true for most computer role-playing games. They are easy in a sense that almost anybody can complete them when given enough time – the more you play the more powerful character you get, and the easier the things become. But there are exceptions to this rule e.g. **Guild Wars** (ArenaNet/NCSOFT 2005) and **Zelazny Angband** (Topi Ylinen et al. 1994), which are both difficult games up to their highest level.



Miyamoto's Current Role as Producer

July 3rd 2003, Tokyo University Lecture gives important insight into the titles of Japanese game people and work methods:

Question: Speaking of which, what role do you play in development?

Miyamoto: I... am a board member. There was this shareholders' conference a little while back, and I was scared I'd have to go up and say something... but in all seriousness, I don't think there are any strict definitions for "What is a director? What is a project document?" in this business.

I joined Nintendo as a designer and I made a few different games, but I guess it was around 1979 that the Space Invaders boom hit, and when I made a Galaxian-ish game we ended up with lots of unsold games in America. The game I made with all those extra boards was Donkey Kong, and I drew all the dot graphics for it. I talked with a few people from outside the company, but these other technicians--there were only two of us at Nintendo back then, including me--they were, like, "What can this long-haired student do? Who is this guy?"

At that time, one person could take care of every part of the game and he was called a designer. There weren't any "designers" like there are today, so I had to do all the graphic-design and game-direction work by myself.

Overall it took six or seven people to make the Donkey Kong game and hardware, and there were about six people on the Famicom too, I think. Once we all got a little bolder and hired on apprentice-type people, around the time of Super Mario Bros., I could just bring out the initial design and leave the rest to the apprentices. That ended up being the best way of all to make games. So by that time I was a director.

After the Famicom's launch, the Disk System was completed in 1985, and I started work on Mario and Zelda sequels at the same time. I was the director on both projects and I really thought I was going to die. At the time, of course, Nintendo wanted to make games that were gentle on young children's eyes (laughs), so all of the backgrounds were always black. However, with things getting prettier all around the industry, we made the background sky-blue on Mario and increased the size of the characters.

Question: So why did you begin calling yourself a producer?

SM: Once we finished Mario and Zelda, the next thing I wanted to do was sequels. I thought Zelda could turn into a new and different game if the game system was more fun and we could switch between maps and things, so... I had people under me do Mario 3 and The Adventure of Link, so I figured, hey, I'm a producer now.

There's also one more reason. To tell the truth, in Nintendo there aren't any official positions called "director" or "producer". Instead you have the kacho/bucho (section chief/department chief) system. The thing is, though, people overseas don't get that system. So when I started dealing with overseas folks, I wanted to sell myself to them, so I just wrote "producer" on my business card. With that title, people from overseas could recognize what I do, and it worked all right. Later I got yelled at from the head office about assigning myself titles, but... (laughs) Those are the two reasons I started calling myself a producer.

Game Development Process inside Nintendo

From July 3rd 2003, Tokyo University Lecture:

"These days, a typical game takes about 20 or 30 main people and then another 20 or so support guys to create. People say that it takes three years to complete the software, but really, if you have 30 people and eight months, you can make the software. Zelda, though, takes more like a year. So what do we do with the other two years? Well, first there're five of us who build the basic concept and project plan. I, along with an employee who serves as the director, get involved at this point, and for the next half year this plan gets solidified... then another half year, and so on, until the full design behind the project is decided upon. After that, eight months and that's it.

I talk to the director during conferences and such, but when I ask "Is this fun?", I don't like people who say "Yes! It's fun!" I prefer guys who look all troubled and say "Mmmm, something's missing..." Even if the director's concerned, though, sometimes the people around him still say "It's fun" when I say "Well?" to them. It's tough, but with a talented director, I can afford to slack off on the project.

References

- Leonard Herman: Phoenix – The Fall & Rise of Videogames (3rd edition) (page 58)
Rolenta Press 2001, ISBN: 0-9643848-5-X
- Sheff, David: Game Over- Press Start to Continue
Game Press 1999, ISBN: 0-966 9617-0-6
- Heather Chaplin and Aaron Ruby: Smartbomb (pages 67-88)
Algonquin Books of Chapel Hill 2005, ISBN: 1-56512-346-8
- Chris Kohler: Power UP - How Japanese Video games Gave the World an Extra Life
Brady Games Publishing / Pearson Education 2005, ISBN: 0-7440-0424-1
- Heather Chaplin & Aaron Ruby: Smart Bomb
Chapel Hill 2005, ISBN: 1-56512-346-8
- Andy Robinson and Carl Johnson: Shigeru Miyamoto Shrine accessed on March 2006,
available on <http://www.miyamotoshrine.com/>
- Mario Mania Players Guide
May 1991, web version, accessed on March 2006, available on
<http://www.miyamotoshrine.com/theman/interviews/0561.shtml>
- Nintendo Official Magazine (UK)
14th September 2003, accessed on March 2006, available on
<http://www.miyamotoshrine.com/theman/interviews/081403.shtml>
- Tokyo University Lecture transcript, 3rd July 2003
Accessed on 4th March 2006, available on
<http://www.miyamotoshrine.com/theman/interviews/030703.shtml>
- Marcus & Mattias Liedholm: Shigeru Miyamoto - the Man Behind Mario
Accessed on 4th March 2006, available on
<http://www.nintendoland.com/home2.htm?profiles/miyamoto.htm>
- Wikipedia article on "Shigeru Miyamoto"
Accessed on 4th March 2006, available on
http://en.wikipedia.org/wiki/Shigeru_Miyamoto

Satoshi Tajiri (1965-) – Designer of Pokémon

Satoshi Tajiri collected insects as a child. He later turned his childhood hobby into a game, where players catch and train different kind of monsters and trade them with each other. The game is, of course, called Pokémon, financially the most successful game series of all time.

Obsessed Child

Satoshi Tajiri was born on 28th August 1965, in Japan. He spent his childhood in a suburb of Tokyo, collecting insects from ponds, fields and the forest, constantly looking for new insects. His friends called him “Dr. Bug”. Satoshi was not fond of school. He was 13 when Space Invaders (Taito 1978) was published and since that he spent most of his time in arcades. One local arcade even gave him a Space Invaders machine to take home. His father wanted him to be an electrical utility man, so Satoshi went to a technical school, which he never finished it.



The fields and ponds, where Satoshi liked to spend his childhood, were covered over with apartments, streets and parking lots. Satoshi wanted to create some way for modern children to hunt down and collect creatures like he did. Tajiri dreamt to make games of his own and he submitted his ideas to many game design competitions. In 1981 he won the first price in a competition organized by Sega.

Game Freak

Satoshi wanted to share the wealth of his game knowledge with the world. Together with his friends he formed a games magazine called **Game Freak** in 1982. A young otaku called Ken Sugimori saw the first issue of Game Freak and wrote to Tajiri sending couple of his illustrations. The two became friends and started to make games.

Nintendo launched Famicom (NES) in Japan in 1983. Tajiri acquired add-ons to his Famicom console including a Famicom BASIC. Tajiri and his friend Sugimori spent five years making a game, called **Quinty** (Namco 1989). The game was a hit in Japan, but the American publishers considered it to be too cute. They altered the game's package and title screen, but left the game-play intact. It was released as **Mendel Palace** in USA and sold about 60000 copies.

In 1991 Satoshi discovered the Nintendo Game Boy. When he saw the link cable, which was used to connect two Game Boy units to each other, he imagined actual living organisms crawling along them. He presented his idea to Nintendo, who was impressed by his Quinty game. He got some initial funding and concept work from another game design studio called Creatures.

Pokémon

Tajiri, Sugimori and the rest of Game Freak staff worked 6 years to create a game, which was originally called **Capsule Monsters**. Satoshi became friends with Shigeru Miyamoto. He acted as a sort of mentor to Tajiri. Instead of having real insects, they



decided to invent over 100 different imagined monsters with different kind of characteristics and special abilities. His friend Ken Sugimori drew all the images of these monsters. The game was first called Pocket Monsters, but it was later shorted to Pokémon for international markets. The original game had two different versions called **Pocket Monster Red** and **Pocket Monster Green** and they were published by Nintendo for Game Boy in 1996. The names were changed into **Pokémon Red** and **Pokémon Blue** when the game was released in 1998 in USA and Europe. In the Japanese version Ash Ketchum, the boy hero of the game was named Satoshi, and Gary Oak was named Shigeru.

Pokémon became an even bigger hit than anybody could expect. In less than ten years the Pokémon games have sold 143 million units, only to be topped by Mario games, which have sold 184 million up till December 2005. No other game series has sold more than 100 million units. Pokémon franchise has been able to generate over \$15 billion dollars worth of sales. There is a very popular card collection series, an animated TV series, a series of films, comics and numerous toys and other branded products related to Pokémon. There has been about 14 billion Pokémon collecting cards sold. Calculating all these together the total revenue of all Pokémon products is probably twice the mentioned figure, \$30 billion American dollars, as mentioned in an article at www.lup.com.

Tajiri's Relations with Miyamoto

In an interview of Time Asia (issue unknown, source webpage) he tells about his relations with Shigeru Miyamoto and replies to questions related to Pokémon:

Question: Are you O.K.? You look pretty tired.

Tajiri: It's the way I work. I sleep 12 hours and then work 24 hours. I've worked those irregular

hours for the past three years. It's better to stay up day and night to come up with ideas. I usually get inspiration for game designing by working this schedule.

Question: The main human guy is named Satoshi. That's your name. Is he your alter ego?

Tajiri: Basically, he's me when I was a kid.

Question: His main rival is named Shigeru. That's the first name of Miyamoto, the famous game designer at Nintendo who did Donkey Kong, Super Mario Bros. Do you consider him your rival?

Tajiri: No! I really look up to Miyamoto-san. In the TV series, Shigeru is Satoshi's master. In the game, they are rivals. Shigeru is always a little bit ahead of Satoshi.

Question: Does Satoshi ever catch up with Shigeru?

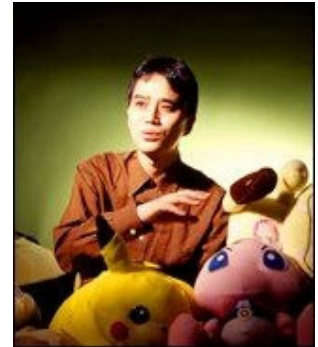
Tajiri: No! Never!

Question: Have you caught up with Miyamoto-san?

Tajiri: I think very highly of him. I'd memorize each piece of advice he gave.

Question: But Pokémon is more popular than anything Miyamoto-san has done. Hasn't the student passed the teacher?

Tajiri: No, because Pokémon was made with Miyamoto-san's advice. Since I was a teenager, playing Donkey Kong, he's always been my role model. He's a mentor for my heart.



Satoshi has been diagnosed to have Asperger Syndrome.

References

- Chris Kohler: Power UP - How Japanese Video games Gave the World an Extra Life (pages 238-249)
Brady Games Publishing / Pearson Education 2005, ISBN: 0-7440-0424-1

- Ray Simon: Mischief Marketing: How the Rich, Famous & Successful Really Got Their Careers and Businesses Going (pages 95-96)
McGraw-Hill 2000, ISBN: 0809225905
- Wikipedia entry on Satoshi Tajiri
Accessed on 5th of March 2006 and available on
http://en.wikipedia.org/wiki/Satoshi_Tajiri
- Asia.com interview of Satoshi Tajiri
Accessed on 5th of March 2006 and available on
<http://pokedream.com/pokemon/infocenter/tajiri.php>
- Jane Pinckard: Pokemon Franchise Generated \$30 Billion
Accessed on 5th of March 2006 and available on
<http://www.1up.com/do/newsStory?cId=3146276>
- Dragonblood93: www.videogame.net article Pokemon Franchise Approaches 150 Million Games Sold
Accessed on 5th of March 2006 and available on
<http://www.videogame.net/vgn/newsstory.cfm?newsid=1818&system=Nintendo>
- Gamenews.virgin.net article: Mario Tops Nintendo Sales
Accessed on 5th of March 2006 and available on
http://gamesnews.virgin.net/Virgin/Lifestyle/Games/virginGamesNewsDetail/0,13470,901933_technology,00.html
- Forum.pcvconsole.com discussion about Mario and Pokemon Franchise Sales
Accessed on 5th of March 2006 and available on
<http://forum.pcvconsole.com/viewthread.php?tid=17468>

Gunpei Yokoi (1941-1997) - Inventor of Nintendo Game & Watch and Game Boy

Gunpei Yokoi is the man behind Nintendo's highly successful handheld game machines and many other inventions.

Early Years and a Little Bit of the History of Nintendo

Gunpei Yokoi (sometimes his name is transliterated Gumpei Yokoi) was born on 10th September 1941.

Yamauchi Nintendo Company was originally founded on 6th November, 1889 by Fusajiro Yamauchi to produce handmade hanafuda cards. In 1941 Hiroshi Yamauchi, the grandson of Sekiryo Yamauchi, who was the son-in-law of Fusarijro, took over the leadership of the company and renamed it as the **Nintendo Playing Card Company**. In 1959 Nintendo got a deal with Disney to allow Nintendo to use Disney characters in playing cards. This was a big success, selling over 600 000 cards in the first year.



During 1960s Nintendo tried many businesses including founding a taxi company and a love hotel as well as the production of toys. Most of them ended in failure

In 1965 after graduating from college with a degree in electronics Gunpei Yokoi went to work for Nintendo on the assembly line of Hanafuda cards. In 1969 Nintendo established a games division, and most of the early game-related toys and devices were designed by Gunpei Yokoi.

In 1979 Hiroshi Yamauchi asked Yokoi to develop something for Christmas. Yukoi responded on the following day presenting **Ultra Hand**, an expanding arm toy, which he had already invented in 1966 for his own amusement. The Ultra Hand was a big success, selling about 1.2 million units.

He went on to develop a large line of inventions, including a love tester (1969), a series of light ray gun toys (1970-1976), a robotic vacuum cleaner (1978), a dancing robot (1985) and **Ten Billion Barrel puzzle** (1980), also known as **Nintendo tumbler puzzle**. The latter was a mathematical puzzle similar to Rubik's Cube (which was invented by the Hungarian sculptor and professor of architecture Ernő Rubik in 1974).



Nintendo Game & Watch

One of the biggest inventions of Gunpei Yokoi was the Nintendo Game & Watch series of handheld game devices. Originally introduced in 1980, they were about the size of a credit card and less than 1 cm thick battery-operated devices featuring an LCD display. Their display showed some static graphics, which always remained the same. The changing parts of the display consisted

of black-colored segments (e.g. player character, objects, enemies, score/point display), similar to the display structure of electronic watches and calculators. Each unit could play just one game. A total of 59 game titles were made in the Game & Watch series during the period 1980-1986. The first of them was **Ball** (published on 28th April 1980). Many of Nintendo's most popular games were converted to Game & Watch format including **Donkey Kong** and **Super Mario Bros**, which Yokoi created with Shigeru Miyamoto. But there were some original titles like **Oil Panic**, **Fire** and **Climber**.

Head of R&D1

In 1980s Nintendo began to assign their research development to divisions headed by their chief engineers and creative minds. Yokoi was appointed to be the general manager of **Research and Development 1** (R&D1), which became one of the most legendary game development units of the company. R&D1 consisted of 55 people, including designers, programmers and engineers. Before Miyamoto got his own R&D department in 1984 Yokoi helped him to produce many of his most famous arcade games including **Donkey Kong** (Nintendo 1981) and **Donkey Kong Junior** (Nintendo 1982). In 1986 some of the developers at R&D1 left the company to form Intelligent Systems, a Japanese video game developer, which later became one of the most important second party developer's for Nintendo. Intelligent Systems is behind the WarioWare and Nintendo (Advance) Wars and Fire Emblem series of games.

Yokoi also produced many important games:

- **Metroid** (Nintendo R&D1/Nintendo 1986), a platform game where a bounty hunter called Samus Aran destroys alien creatures. Samus wears a suit covering his body. At the end of the game it is revealed that Samus Aran is a woman. Yokoi also produced the sequels of the game: **Metroid II: Return of Samus** (Nintendo 1991) and **Super Metroid** (Nintendo 1994)
- **Kid Icarus** (Nintendo 1986), a platform game for NES
- **Super Mario Land** (Nintendo 1989) and its sequels **Super Mario Land 2: 6 Golden Coins** (Nintendo 1992) and **Wario Land: Super Mario Land 3** (Nintendo 1994) all for Nintendo Gameboy
- **Dr. Mario** (Nintendo 1990), a puzzle game for Game Boy and NES
- **Tetris Attack** (Nintendo 1995), a puzzle game similar to Tetris
- **Fire Emblem: Seisen no Keifu** (Intelligent Systems/Nintendo 1996)
- **3D Tetris** (T&E Soft/Nintendo 1996)

Nintendo Game Boy

Gunpei's biggest innovation was the **Nintendo Game Boy**, a handheld game console released in 1989. It was bit bulky and ugly and it only offered a dim display with grey-scale graphics, whereas the competition e.g. Atari Lynx, had beautiful color graphics. But Nintendo had an unprecedented game library and better battery life and a cheaper price. Despite this there was lots of demand for a Game Boy with a better color display. Yokoi refused to release a color version of Game Boy, because this would significantly lower the battery life. Nintendo and Yokoi even played a joke on customers by releasing



Game Boys, which had been painted with different colors on the outside, but otherwise were the same as the original unit. Game Boy quickly became a hit and R&D1 was assigned to develop games exclusive for Game Boy. In its various incarnations Nintendo Game Boy is the most successful game machine of all time with about 770 million games sold for Game Boy machines. By 2000 Game Boy had already sold 100 million units. Currently the total sale of all Game Boy machines is about 185 million.

Virtual Boy

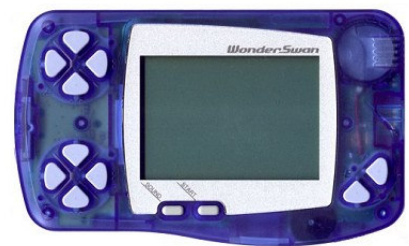
The enormous success of Game Boy raised Yokoi into great status, but this was all crushed by his next innovation. Gunpei Yokoi began to develop a video game console, which would allow real stereoscopic 3D using an eye glass style projector display. Nintendo released the **Virtual Boy** game console on 21st July 1995 in Japan and 14th August 1995 in USA. It generated different monochromatic images for both eyes using an array of 384x224 LEDs to create black and red colored graphics. The product was both a critical and commercial failure. People, especially children under 7, complained of eye strain and neck pain from just a few minutes of playing. The game was marketed as a portable system, but it practically required a stationary table for the game unit. Others blame the bad quality of the games released for the system. Nevertheless after the Virtual Boy fiasco Gunpei Yokoi was treated like an outcast at Nintendo. He resigned from Nintendo on 15 August 1996 and formed a company called **Koto Laboratory** in Kyoto. There he began developing a handheld video game console in co-operation with Bandai, a Japanese toy manufacturer.



Fatal Accident

On 4th October 1997 Yokoi was a passenger in a car driven by Etsuo Kisō, a businessman from Kyoto. They saw a car accident and Yokoi went to examine the damage but another car, driven by Iwao Tsushima hit the two men. Kisō survived with two broken bones, but Yokoi died 2 hours later in hospital.

WonderSwan was finally released by Bandai in 1999, two years after Yokoi's death. It had more powerful hardware than Game Boy, but never became as popular and it was practically only sold in Japan.



Yokoi was granted the Lifetime Achievement Award posthumously at the Game Developers Choice Awards ceremony on 6th March, 2003

References

- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition)
Osborne 2004, ISBN: 0-07-223172-6
- Leonard Herman: Phoenix – The Fall & Rise of Videogames (3rd edition) (pages 207, 255-256, 272 and 288)
Rolenta Press 2001, ISBN: 0-9643848-5-X
- Wikipedia entry on Gunpei Yokoi
Accessed on 6th March 2006, available on
http://en.wikipedia.org/wiki/Gunpei_Yokoi

- Wikipedia entry on Nintendo Company
Accessed on 6th March 2006, available on
<http://en.wikipedia.org/wiki/Nintendo>
- Wikipedia entry on Nintendo Game Boy
Accessed on 6th March 2006, available on
http://en.wikipedia.org/wiki/Game_Boy
- Wikipedia entry on Nintendo Game & Watch
Accessed on 6th March 2006, available on
http://en.wikipedia.org/wiki/Game_%26_Watch
- Biography of Gunpei Yokoi 1941-1997
Accessed on 6th March 2006, available on
<http://www.virtual-boy.org/gunpei%20yokoi.htm>
- Nintendo.com (6th January 2006): Dockable Entertainment Featuring Game Boy Advance
Accessed on 6th March 2006, available on
[http://www.nintendo.com/newsarticle?articleid=Q5VWIpmZ5bO3CAvOeCu0acwpqllu35o
&page=](http://www.nintendo.com/newsarticle?articleid=Q5VWIpmZ5bO3CAvOeCu0acwpqllu35o&page=)
- Nintendo 2005 Annual Report (featuring Game Boy Sales numbers)
Accessed on 6th March 2006, available on
<http://www.nintendo.com/corp/report/NintendoAnnualReport2005.pdf>

Yu Suzuki (1958-) – Designer of Outrun, Virtua Fighter and Shenmue

Yu Suzuki was the lead game designer and director at Sega. He is often considered the equivalent "Miyamoto" of Sega. His most famous designs include Outrun, Virtua Fighter and Shenmue.

Early Years

Yu Suzuki was born on 10th June 1958 in Iwate prefecture, Japan. He majored in electronic science at the Okayama University of Science. He came to work for Sega Enterprises in 1983 as a programmer and a producer. For years he has been leading Sega's legendary AM R&D department 2 (AM2), which is behind many famous games. In 1985 Suzuki created a motorcycle racing game called **Hang On**. The player controlled the rides tilting a virtual motorcycle. In the same year he released **Space Harrier**, which was a shooting game utilizing sprite scaling, a technique to display the same graphical bitmaps in different sizes to create a 3D look-alike effect. The motorized cabinet of the game moved into 4 directions to enhance the immersion.



Towards Visual realism

In 1986 he created the highly successful car-racing game **Out Run** (Sega 1986), which contained alternative routes to reach the final goal. He is also one of the pioneers of using 3D graphics in video games. **Virtua Racing** (Sega 1992) used flat-shade 3D polygon graphics. It was not the first racing game to do it. Atari's **Hard Driving** from 1988, had already done this, but Virtua Racing was a much bigger success and it paved the way for other 3D racing games using more advanced 3D graphics.



Virtua Fighter

In 1993 Suzuki created **Virtua Fighter**, the first fighting game to use 3D graphics. This game was followed by **Virtua Fighter 2** (Sega 1994), **Virtua Fighter 3** (Sega 1996), which both had texture mapped 3D graphics. According to many people the game play actually got worse in comparison to the first part. **Virtua Fighter 3 Team Battle** (Sega 1997) added the possibility to have 2 vs. 2 matches. In 2001 **Virtua Fighter 4** (Sega 2001) was released as an arcade game and later for

PlayStation 2. The Virtua Fighter Virtua Fighter 4: Evolution (Sega 2002) improved the game-play further by adding new kumita mode and AI trained by the best arcade gamers.

Screenshots from top left to bottom right: Virtua Fighter, Virtua Fighter 4, Virtua Fighter 2, VF 4



Shenmue - The Most Ambitious Video Game Project

In 1999 AM2 and Yu Suzuki launched **Shenmue**, their most ambitious creation, which took them 5 years and 70 million dollars to develop. The used a system called **F.R.E.E.**, short for Full Reactive Eyes Entertainment. Shenmue was only available for Sega Dreamcast. The game featured an entire small Japanese town to explore with dozens of NPCs and real-time weather effects. The game on game on 4 GDROM disks, with disc number 4 being so called "passport" disc, allowing the player to view all the in-game movies, which were all done using the game's amazing and immersive game engine. People in the game had jobs and usually went to job or school in the morning, the lighting and weather of the game was totally dynamic, allowing the player to live the game like it was real life, not a game. The game even featured lots of shops, houses and even a game arcade, which contained Sega's Space Harrier and Hang-on games, which could be played fully.

The NPCs of the games were very detailed with free-flowing hair, facial muscles and flapping lashes, features unseen in games before it. Even more amazing was it that it all run on Dreamcast video game hardware and not some high-end PC. It took other games many years to achieve the visual level of Shenmue. Despite the fact it was graphical marvel of its time, the game was not a commercial success. The original plan was that Shenmue was only the beginning of really long saga

of role-playing games, but it got only one sequel called **Shenmue II** (Sega 2001), which was also published for Sega Dreamcast and later for Microsoft Xbox.



Screenshot: At arcade in Shenmue, Ryo teaching little girl how to take care of an orphan kitten, (below) art from Shenmue.

Suzuki's New Directions

Suzuki is known to have exquisite taste for wines and cars. This is reflected in many of his creations. **Ferrari 355 Challenge** (Sega 1999) was a racing simulator game, with photorealistic graphics. It was also the first game for which Ferrari licensed only single models of their cars.

In 2003 Suzuki was selected into the Academy of Interactive Arts and Sciences' Hall of Fame. In 2003 Yu Suzuki left Sega AM2 to head his own Digital Rex studios.

Suzuki's View to Game Design

www.gignews.com interview of Yu Suzuki and Will Wright:

Question: How do you approach game design?

Suzuki: I appreciate originality in everything so I don't only want to be involved in games. I like to do many things and only after the inspiration has accumulated do I begin making the game. I get a lot of inspiration outside of the game industry. I also get inspiration from dreams. Like Dali, the famous painter, I get a lot of my inspiration from dreams.

Question: What are your references and influences and how do those references influence your game design? Do you draw inspiration from other art forms? film? science? other innovative designers? etc.

Suzuki: ...For the past five years, I have been constantly researching movies. I have accumulated over 500 DVDs. The new game platforms effectively allow cinematic expression in games. I think many things will be merged between games and movies. Well produced movies from Hollywood with all of their technological enhancements are hard to analyze. They seem too perfect to study. Some second class movies from Hong Kong are useful in that they show what not to do. My travels, as well as movies, also inspire me. For example, when visiting a European country, I saw beautiful 7th century palaces and fortresses. I want to use these landscapes and structures in my games.



...I have been carrying around sketchbooks and notebooks, carrying them everywhere. This particular one contains a new game idea. Ideas pop up very quickly. Sometimes many ideas will pop up simultaneously so while I am making notes on one idea, I'll forget other ones.

References

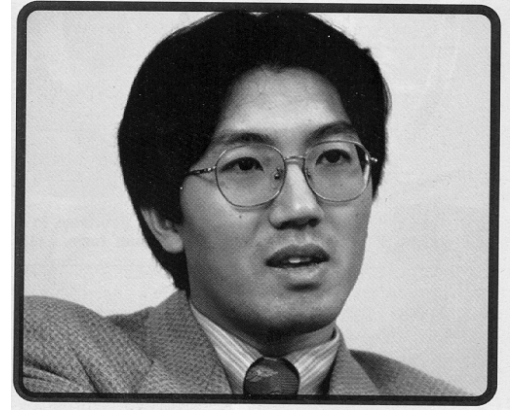
- Imagine Media Group: Video Games - The Ultimate Guide (pages 328, 337 and 374)
Carlton Books 2002, ISBN: 1842222767
- Shenmue Dojo: Biography of Yu Suzuki
Accessed on 4th of March 2006, and available on http://www.planetxbox.com/shenmuedojo/Yu_Suzuki.shtml
- Wikipedia article on Yu Suzuki
accessed on 4th of March 2006, and available on http://en.wikipedia.org/wiki/Yu_Suzuki
- Melanie Cambron: www.gignews.com interview - THE E3 PANEL WITH WILL WRIGHT AND YU SUZUKI accessed on 4th of March 2006, and available on http://www.gignews.com/goddess/suzuki_wright.htm
- Sega AM2: List of Games
Accessed on 15th November 2005, no longer available at <http://www.sega-am2.co.jp/en/games/index.html>

Yuji Naka (1965-) – creator of Sonic the Hedgehog

Video game history author Steve L. Kent described Yuji Naka as brilliant, temperamental and an extreme perfectionist. Yuji Naka is most famous for creating Sonic the Hedgehog.

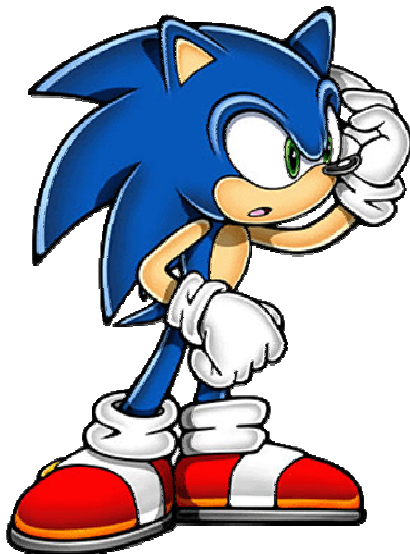
Without Formal University Education

Yuji Naka was born on 17th September 1965 in Japan. Immediately after his graduation in 1985 he applied for a job at Namco, but he was not hired, because he lacked a university degree. He got a job at Sega in 1985. His first works include **Space Harrier** (Sega 1986), a popular shoot 'em up game with scalable sprite graphics and **Black Belt** (Sega 1986). In 1989 he made a nearly perfect conversion of **Ghouls 'N Ghost** (Capcom 1988), a side-scrolling platform arcade game, for Sega Genesis.



Head of Sega AM8 Studio

In 1988 Sega established Sega AM8 game studio. Naka became the head of this team. Their first game was **Phantasy Star** (Sega 1988), a role-playing game for the Sega Master System, which was mostly programmed by Naka himself.



Birth of Sonic

Around 1989-1990 Sega commissioned a 15-man team at AM8 to create a new mascot, a game character that could compete with Nintendo's immensely popular Mario. They went through various different kinds of designs. Naka liked Mario games, but he felt they lacked speed and Mario just didn't have the "attitude". Their final design was a stylish blue hedgehog, called Sonic, which moved much faster than any game character before. In 1991 a game called Sonic the Hedgehog was published for Sega Genesis, a new 16-bit game console. The audience also thought that Sonic was "cool" and they liked the game-play, which forced the player to go through hoops and areas, where Sonic had to move really fast. In the same year the AM8 studio changed their name into Sonic Team. Sonic the Hedgehog has spawned numerous sequels and has appeared on about a dozen different game platforms. Sonic has spawned a comic book, a cartoon series and branded products for children. For a short period of time, mainly thanks to the enormous success of Sonic, Sega became as popular as Nintendo. In 1993 Sega's gross sales rose to \$3.6 billion from \$813 million in 1989.

Naka's Personality

Naka is often described as relentless micromanager, accepting nothing short of perfection from his team members. Naka preferred to do everything himself from programming the game, making the music and to the making the level design. Of course as games grew larger and production values went higher this

was no longer possible for one person within a reasonable time. In some early games he was credited as Muuuu Yuji or “YU2”, in reference to Yu Suzuki, the most famous game designer of Sega.



Screenshots from Sonic 1 (up left), Sonic 2 (up right) and Sonic Adventure 2 (below)



In The Ultimate History of Computer Video Games Steve L. Kent writes:

“Naka’s demanding managerial style sometimes gave way to outbursts. Unlike other creative teams, Naka’s team suffered from heavy turnover as burned-out programmers, designers and artists looked for less demanding work elsewhere. Mild-mannered in public, Naka was said to be given emotional flare-ups when under stress”

Nevertheless Naka has a very high reputation and enormous success with Sonic, so he has continued to make games. In 1996 Naka and the Sonic Team created an ambitious action game called **NiGHTS Into Dreams...** to demonstrate the capabilities of Sega Saturn. Naka was the main programmer of the NiGHTS projects and he sweated over every detail of the game:

“NiGHTS was a difficult game to make... very difficult. It wasn’t just the 3D aspects, it was more the actual game itself, the worlds and the way the characters interacted, If the game was missing one important element, it was going to be a complete failure and everybody would look at it and say: “This is a really a disappointment”. ”



Several famous game designers have worked under Naka's lead, including Hisao Oguchi, the designer of **Virtua Tennis** (Sega 1999) and **Crazy Taxi** (Sega 1999) and Tetsuya Mizuguchi, creator of **Sega Rally** (Sega 1995) and **Space Channel 5** (Sega 1999).

References

- Steve L. Kent: The Ultimate History of Video Games
Prima Publishing 2001, ISBN: 0-7615-3643-4
- Wikipedia entry on "Yuji Naka"
Accessed on 5th of March 2006, available on
http://en.wikipedia.org/wiki/Yuji_Naka
- Allgame.com entry on "Yuji Naka"
Accessed on 5th of March 2006, available on
<http://www.allgame.com/cg/agg.dll?p=agg&SQL=FIBIIII3325>
- John Battelle and Bob Johnston: The Next Level: Sega's Plans for World Domination
Wired Magazine Article 1996 (issue unknown), featuring history of Sega and sales data
Accessed on 5th of March 2006, available on
<http://www2.gol.com/users/coynerhm/sega.html>
- Hasan Ali Almaci and Heidi Kamps: An Interview with Yuji Naka
The Next Level 15th June 2004
Accessed on 5th of March 2006, available on
<http://www.the-nextlevel.com/features/interviews/yuji-naka/>
- Wikipedia entry on Sonic Team
Accessed on 5th of March 2006, available on
http://en.wikipedia.org/wiki/Sonic_Team
- Sam Kennedy: Sonic the Hedgehog
Accessed on 5th of March 2006, available on
<http://www.1up.com/do/feature?cId=3134008>
- Andreas Tunek: Sonic Team Section
Accessed on 5th of March 2006, available on
<http://user.tninet.se/~cio759u/>

Hironobu Sakaguchi (1962-) – Designer of Final Fantasy

Hironobu Sakaguchi is famous for being the director and lead designer of the Final Fantasy series of games until part XI. His games have been very successful and are considered as a landmark in fantasy role-playing games. However his Final Fantasy film is one of the biggest commercial flops in the history of cinema.

Early Years

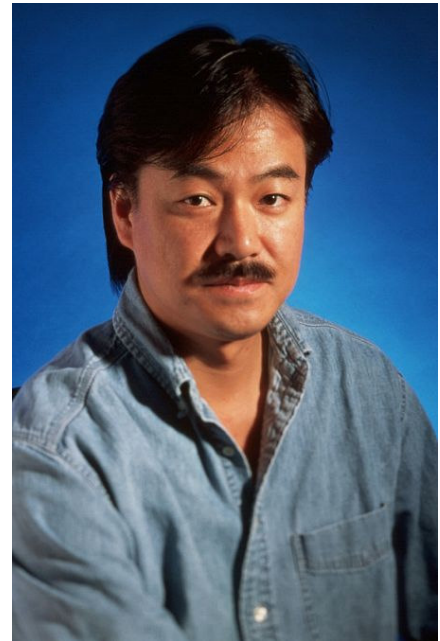
Hironobu Sakaguchi was born in 1962. He studied computer science in Yokohama National University. He fell in love with role-playing games while playing **Wizardy** (Sir-Tech Software 1981) on his friend's Hiromichi Tanaka's Apple II computer.

According to Power-Up he told:

"It was totally different from the arcade games of the time - there was a story and you could them for a long time. So fell into this thing called role-playing games, and after that I hardly ever went to class. I would just pull all-nighters with Wizardy"

In the spring of 1983 a Japanese PC software company, called **Denyo**, was setting up a game division called **Square**. They hired 2 students, Sakaguchi and his friend Tanaka, and 3 programmers. They worked in a tiny two-bedroom apartment in Yokohama and Sakaguchi acted as their creative director. Their first game was **Deathtrap**, a PC adventure game where the player had the role of last survivor on a deserted island. The game was released in 1984 and took up three 5.25" disks, being a really large game for its time. The game was hit and Tanaka and Sakaguchi decided to take a leave from their studies. They released a sequel to the game called **Will: DeathTrap II** (Square 1984).

Square began to grow and became so important that it was finally spun off as a separate company in May 1986. In the same year Sakaguchi was appointed to be the director of planning and development at Square Co. Ltd. He was leading **Square A Team**. The team consisted of him, Iranian-born **Nasir Gebelli**, who was famous in Apple II of being able to turn out a new game every 5 weeks, and couple of other programmers. Sakaguchi's role's became more in creative design and scenario writing than programming.



Square A Team was responsible for making cartridge based games for consoles, mainly NES. **Highway Star** (Square 1987) also called "**Rad Racer**", was a car racing game, which used of Gebelli's fast 3D-alike graphics. The game's music was done by **Nobuo Uematsu**, who later became famous for composing music for all the Final Fantasy games. The game even supported motorized 3D glasses and an optional pair of red- and blue glasses were sold as well. Another game called **Tobidase! Daisuken!** (Square 1987) was Mario-style was platform jumping game, but used 3D-alike view with the camera behind the main character. Both games were big successes, selling around half a million copies. Square wanted Sakaguchi and Gebelli to make more games like these, but Sakaguchi absolutely hated them. He wanted to make a role-playing game similar to Wizardy. He went to talk with president of Square with his idea and he was approved to do his game.

Sakaguchi decided to call his game Final Fantasy as he was planning to quit Square and go back to continue his studies.

Final Fantasy I

In addition to Wizard Sakaguchi was heavily inspired by a role-playing game called **Dragon Warrior** (Enix 1986), a game designed by Yuji Horii. Dragon Warrior was very popular game, which later spawned the **Dragon Quest** series of role-playing games, which are extremely popular in Japan. Sakaguchi wanted his game to have more adult feel and complicated, epic plot. He hired freelance artist **Yoshitaka Amano** to make the graphics. Nobuo Uematsu, who had already made music Highway Star and **King Knight's Special** (Square 1986), was commissioned to make an epic soundtrack for the game.



Sakaguchi borrowed heavily from the writings of J.R.R. Tolkien, especially the Hobbit and ords of the Rings. His game also featured elves, dwarves and mithril, a mythical blend of steel and silver.

In 1987 Square published the **Final Fantasy** (Square 1987) for NES. This was the beginning of one of the best selling game series of all time. Final Fantasy (FF) was well implemented with nice graphics, sound and good controls. It used turn-based combat, where each member in the party did his moves, followed by the opposing party. At the beginning of the game one could choose 4 characters for 6 different character classes: fighter, thief, blue belt, white mage, red mage and black mage. Unlike other NES games of that time it had no title screen at all. Instead it began with long text, like the Star Wars films. The game was more movie-alike than almost any other NES game of its era and had more epic and deep story. The players loved it and soon Square began to solely concentrate on making role-playing games for consoles.

Final Fantasy II and III

The game was followed by **Final Fantasy II** (Square 1988) and **Final Fantasy III** (Square 1990), which both were made for NES and used the same kind of system as the first FF game.

FF2 is the only FF not using experience points, instead each character develops after the combat based on what it was doing e.g. it if was using a sword, it gets more skilled wielding that weapon and its physical strength increases. The game suffered from bugs, the most famous of them was the cancel bug, which allowed canceling a previously issued command but still getting the statistic-increasing benefit from it. The game also featured an end sequence with credits and full names of the authors - a practice unheard on popular NES game of its era. This helped the players to recognize the authors and made the game even more similar to the films.

FF3 introduced a job system, which was basically a character classes, but with the ability to switch between them or even have several of them. FF3 had 11 warrior type jobs from





fighter to ninja and 11 mage-type jobs from white mage to sage. FF3 also had an improved battle engine: if the enemy was defeated the next character automatically switched to a new target instead of hitting thin air.

Final Fantasy IV

The next FF game, **Final Fantasy IV** (Square 1991) was made for the new Super Nintendo Entertainment System (SNES). The game had even deeper plot dealing with moral problem of whether to serve your king and kill the innocents or fight for the right. FF4 had better graphics and introduced the Active Time Battle (ATB) system, in which players must give orders to their characters in real-time. ATB was

used in the next 5 FF games as well as some other games published by Square, such as **Chrono Trigger** (Square 1995).

Final Fantasy V & VI and Promotions

In 1991 Sakaguchi was promoted to be the Executive Vice President of Square Co.

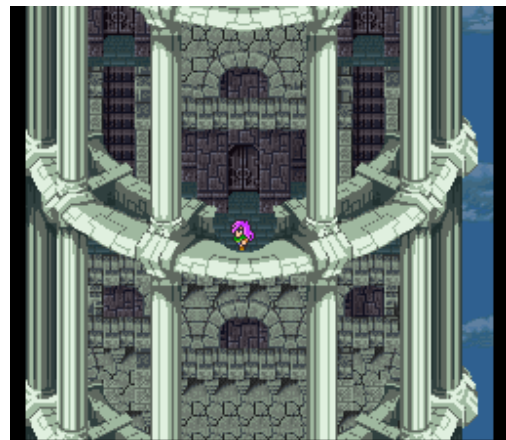
Final Fantasy V (Square 1992) was made originally for SNES as well and it had a revamped job system, which allowed each character to master all 22 jobs. The game was a step back in terms of drama, featuring little moral dilemmas and pretty straightforward storyline.

Final Fantasy VI (Square 1994) for SNES didn't bring much new to the game play, except desperation attack, which gave a small chance for a critically wounded character to use an extremely powerful special attack instead of a normal physical attack. The game was more dark and moody than any other Final Fantasy game. Perhaps due this fact, many players consider FF6 to be the best Final Fantasy game in addition to FF7. Final Fantasy VI sold 2.5 million copies alone in Japan.

In 1995 Sakaguchi was appointed to be the president of **Square LA, Inc.**, later renamed **Square USA Inc.**, a research and development studio located in Los Angeles, USA.

Chrono Trigger

Sakaguchi co-designed the high-acclaimed **Chrono Trigger** (Square 1995) with Yuji Horii. It was first made for SNES, but in 1999 also released for PlayStation. Chrono Trigger used a combat system similar to the one used in FF games, including the ATB system. Perhaps the biggest difference from the FF series is that Chrono Trigger had no separate screen for battles and the monsters could always be seen on the screen (allowing player to potentially avoid them, instead of being harassed by countless random fights, a typical feature in Japanese console role-playing games).



Some people consider Chrono Trigger to be one of the greatest games of all time, and are especially fond of its music. Some other people dislike the game's "short" length. It takes only 20-25 hours to complete the game, where as it takes about 100 hours to complete **Dragon Quest VI: Maboroshi no Daichi** (Heartbeat/Enix 1995). Personally I think even 20-25 hours is too much for most games – why have so much repetition?

Chrono Trigger had a sequel on Sony Playstation called **Chrono Cross** (Square 1999), but most reviewers consider it inferior to the original.

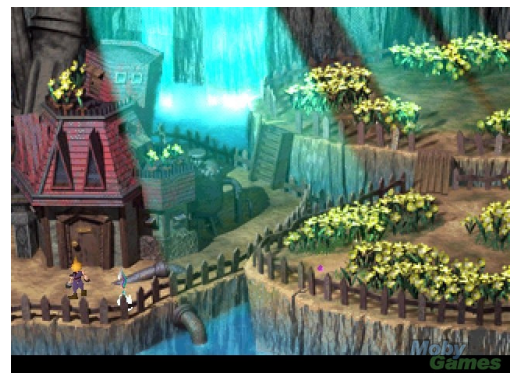


Screenshots from Chrono Trigger (left) and Chrono Cross (right)

Final Fantasy VII

Final Fantasy 1-6 had all been made for Nintendo game consoles. One of the key reasons for Square switching to produce the next installment of Final Fantasy for Sony PlayStation (PS) instead of Nintendo 64 (N64), was the fact that N64 didn't have a CDROM-drive like the PS did. Sakaguchi wanted to make the next game much bigger than any of the previous games, featuring lots of cut-scenes with pre-rendered graphics. These cut-scenes could not be skipped or shortened and they often required some player interaction to proceed. Due to the existence of the lengthy videos the game was split into 3 CDROMs, containing an impossible amount of data to squeeze onto a N64 game cartridge, which were about 8 Megabytes in capacity at that time.

Final Fantasy VII (Square 1997) was released on 31st January 1997 and on 31st August 1997 in USA. It sold an amazing 3 million copies in the first 48 hours after its release. A year later FF7 was released for Windows PCs as well. By the year 1999 FF7 had sold more than 8 million copies worldwide. It got rave-reviews all over the world. GameFan review stated it to be, "quite possibly the greatest game ever made".



Final Fantasy VII (FF7) is a menu-driven role-playing game with a fairly linear story. It used the same ATB system and turn-based combat, but limited the amount of persons in a party to three. In the combat the player selects actions for each character e.g. attack, use item (e.g. drink potion to get health points or mana points back) ,or use special ability. Desperation attack, which made its debut in FF6, made a comeback in FF7 under the name “limit break”.



The game also featured *materia*, magic orbs, which can be placed on weapons and armors, to access magic spells later, or to access special commands and other abilities. The American and international version of the game had extremely difficult, optional boss monsters called WEAPON. Emerald Weapon could kill all three characters in a party with just one attack.

Despite the fact the game had nothing novel in its game play, many people consider it to be not only the best Final Fantasy game, but the best game ever. This is perhaps due the fact that some people really love the storyline behind FF7. At the end part of the game one central character, called Aerith Gainsborough (Aeris in the American version), dies. This brought many players to the verge of tears.

Parasite Eve

Next Sakaguchi produced **Parasite Eve** (Square 1998), a game based on a Japanese novel of the same name by Hideaki Sena. The story revolves around a genetic scientist who tries desperate measures to revive his wife, leading to a new threat to mankind. The game version is a mixture of survival horror and a role-playing game. The popular game had a sequel a year later: **Parasite Eve II** (Square 1999). The sequel was much less popular than the first part, mainly due to gamers disliking that it for having too much survival horror and similar to Capcom's Resident Evil game series, instead of being a role-playing game.



Final Fantasy VIII

Final Fantasy VIII (Square 1999) came on 4 CDROM for PS. The combat of the game revolves around monsters, called Guardian Forces, which can be summoned. The player must have a Guardian Force to use special abilities. Previous FF used magic points (MP) to activate spells and many other special abilities, but in FF8 spells are drawn from enemies from special Draw Points. The game also introduced a collectible card-based mini game called Triple Triad. The game was an enormous success like FF7. In just 3 weeks it earned more than \$50 million in sales, making it the fastest selling FF title. A year later the game was released for Windows PC as well. FF8 has sold over 6 million copies worldwide.



Chocobo Racing

Sakaguchi produced **Chocobo Racing** (1999) a racing game using popular characters from the Final Fantasy series, including Chocobo himself. It is similar to Nintendo's MarioKart, but it never became as popular and no sequels were produced.

Vagrant Story

Sakaguchi co-produced **Vagrant Story** (Square 2000) - an action role-playing game featuring some of the best graphics ever seen on a Playstation platform. The game allowed the player to hit different areas of the enemy's body, jump and move objects to a new place so as to use them to climb over obstacles that were otherwise too high.



Screenshot from Final Fantasy 9 (on top of page screen shot of Vagrant Story)

Final Fantasy IX

Final Fantasy IX (Square 2000) is graphically the most brilliant FF game on the PS platform. It had a humorous story and cute cartoon-like characters. Its combat system was quite different from previous two FF games. FF9 had 4-character parties and a trance system, similar to "limit break" and desperation attack. In FF9 most spells could target multiple enemies. Despite having excellent graphics and soundtrack the game was not as popular as FF7 or FF8.

Final Fantasy X

Final Fantasy X (Square 2001) was the first FF game on the PlayStation 2 platform. The new platform, of course, allowed better graphics, but the game system was also subject to changes. ATB was replaced by a Conditional Turn-Based Battle System designed by Toshiro Tsuchida. It also had a new experience leveling system called Sphere grid, which is a sort of mini-game of its own. I personally found FFX to be an utterly boring game in the beginning, with ok graphics, but overly long game-play involving an inflated numbers of annoying characters.



Making a Final Fantasy film: the Spirits Within

In 1997 Square Co. Ltd. formed a film division, named Square Pictures, located in Honolulu, Hawaii, to produce motion pictures using Computer Graphics (CG). The studio's first film was **Final Fantasy: The Spirits Within**, released on July 11, 2001. The film was directed by Hironobu Sakaguchi. He got the inspiration for the basic story of the film from the death of his mother. The film will be remembered in movie history for a couple of reasons. It was the first full-length motion picture with (fairly) realistic looking human characters produced entirely using CG. Secondly it made about \$123 million in losses, making it the biggest financial flop in the history of films.

Just like the Final Fantasy games, the film was technically excellent, but the animation was stiff and the story was filled with clichés, bland characters and borrowed elements from anime films and Aliens-movies. The film's production costs were huge: \$137 million plus \$30 million for marketing, but the box office sales in North America were just \$32 million.

The huge financial losses of the film caused Square to shut down Square Pictures and the entire game company might have gone bankrupt if Sony would not have poured money into Square. In 2002 Square Co, Ltd. merged with Enix, another Japanese video game producer, famous for its role-playing games, creating Square-Enix. Many people speculate that one of the key reasons for this merger was the financial troubles caused by the film.





Final Fantasy X-2

Final Fantasy X-2 (Square 2003) was the first direct sequel in the series of FF games. All the previous Final Fantasy games have been separate games, each with their own storyline, often totally unrelated to previous games in the series. The story of FF X-2 takes place two years after the end of FFX. The game-play had several changes. Conditional Turn-Based play was replaced with ATB. Battles happen faster with more emphasis on quick decisions and timing. The party consists of three girls: Yuna, Rikku and Paine. Since there are no other characters to control, there is no way to swap characters in the team, as in earlier FF games. The game also featured *Garment Grids* and *Dress Spheres*, which are similar to the job system in FF5. The game-play was more non-linear than in other FF games, which are very linear, as in most console RPGs. FF X-2 was a disappointment to the many fans of the series and perhaps the biggest critique is that the game had a good ending and the fact that it was light-hearted compared to the epic tragedy story of its precursor. Despite getting not-so-good reviews and some fan complaints it sold over a million units.

Massively Multiplayer Final Fantasy XI

16th May 2003 marked the Japanese launch of Final Fantasy XI, a massively multi-player online role-playing game (MMORPG). FF11 was not designed or produced by Sakaguchi, but nevertheless it is the only MMORPG published both on consoles (PlayStation 2) and PC. Nowadays it is one of the most popular games in its genre. There are 31 servers for playing the game, named after the summoned creatures of earlier FF games.

Success of Final Fantasy

By 2001 Final Fantasy games have sold 33 million units worldwide and there are more FF games in production, even though Sakaguchi and many other key members have departed from Square.

I have personally never enjoyed the Final Fantasy series of “games”. Especially after FF7 the games have included really long cut scenes, which cannot be skipped, making them more like a non-interactive movie experience with an overly long plot and boring characters, and, as such, they are less like games. The battle system of any FF title suffers from the same weaknesses as most console RPGs produced in Japan. They are clearly aimed for people who have patience and want to “enjoy” a story-based game, which can easily last more than 50 hours. However the games have superb music. Almost all the games have a sound track composed by Nobuo Uematsu. The game soundtracks have also been released on CD.

More a Story-Teller than a Game Designer

Sakaguchi can be classified as a game designer, who is actually more of a story-maker and cut-scene film maker, than a game designer. He and his team, who made the Final Fantasy games, have hardly come up with a single original idea in game design worth copying to other games. But it is obvious that the sad stories in many of his games appeal to a large number of people. In 2000 Sakaguchi became the third person to be selected for the Academy of Interactive Arts and Sciences’ Hall of fame. His games have sold over 60 million units worldwide in total.



In 2004 he left Square and formed his own development studio, **Mist Walker**. Microsoft hired them to make exclusive role-playing games for the Microsoft Xbox 360, hoping that Sakaguchi’s name and talent would make Xbox 360 more popular in Japan, where console role-playing games are extremely popular.

Screenshots from MobyGames and pictures from interviews.

References

- Chris Kohler: Power UP - How Japanese Video games Gave the World an Extra Life
Brady Games Publishing / Pearson Education 2005, ISBN: 0-7440-0424-1
- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games
(2nd Edition)
Osborne 2004, ISBN: 0-07-223172-6
- Wikipedia entry on Hironobu Sakaguchi
Accessed on 6th March 2006, available on:
http://en.wikipedia.org/wiki/Hironobu_Sakaguchi

- MobyGames entry on Hironobu Sakaguchi
Accessed on 6th March 2006, available on:
<http://www.mobygames.com/developer/sheet/view/developerId,33334/>
- Wikipedia entry on Final Fantasy (game series)
Accessed on 6th March 2006, available on:
http://en.wikipedia.org/wiki/Final_fantasy
- Wikipedia entry on Final Fantasy: The Spirits Within (film)
Accessed on 6th March 2006, available on:
http://en.wikipedia.org/wiki/Final_Fantasy:_The_Spirits_Within
- Doug Hill: Interview with Final Fantasy Producer, Hironobu Sakaguchi
Accessed on 6th March 2006, available on:
<http://www.rpgamer.com/news/Q4-2001/101401a.html>
- Chris Neumer: Hironobu Sakaguchi Transcript (August 2001)
Accessed on 6th March 2006, available on:
<http://centerstage.net/stumped/Interviews/sakaguchi.html>
- Douglass C. Perry: E3 2005: The Hironobu Sakaguchi Review
Accessed on 6th March 2006, available on:
<http://xbox360.ign.com/articles/617/617344p1.html>
- Final Fantasy: Spirits Within DVD booklet
(published 2001 by Columbia Pictures)

Ken Kutaragi (1950-) – Father of PlayStation

Ken Kutaragi began his career as an engineer at Sony, later rising to executive status. He is known as the father of PlayStation, PlayStation 2 and PSP.

Brilliant Engineer



Ken Kutaragi was born on 8th August 1950 in Tokyo, Japan. Since early childhood Kutaragi liked to take toys apart to see how they worked. At the age of 10 he built a guitar amp. And during his teenage years he made go-karts from old scooters. His parents owned a printing plant where he worked after school hours. He was a studious, “straight A” level student. In 1975 He got a degree in electronic engineering in Denki Tsushin University. Immediately after graduation he got work at Sony in their laboratory. Kutaragi learned and reverse-engineered the first microprocessors by Intel, Hitachi and others. He saw the future was in digital technology.

In 1970s Sony was still very much into analog technology and Kutaragi met a lot of resistance from rivals at Sony. One powerful Sony executive warned him: *"I hear you want to develop digital technology; you must never say that at Sony. You will be transferred immediately...That's out of the question. That's a taboo at Sony"* (From Weird ideas that work).

Despite his stubborn character and disagreements with colleagues Kutaragi quickly earned the reputation of being an excellent problem solver and eventually was promoted to manager status. He worked on many projects including early liquid crystal displays (LCD). He became the head of R&D unit, which developed the first-ever digital camera for consumer market called the **Sony Mavica**.

Secret Chip for Nintendo

Kutaragi bought a Nintendo Famicom (NES) for his 8-year-old daughter and then he realized the potential of video games. Back then the Sony executives had little interest in games and saw Nintendo nothing more than a toy. They more believed in MSX home computers, which Kutaragi thought were unsuitable for real-time graphics.

Kutaragi liked NES, but there were couple of things, which he thought would need improvement: the Nintendo used ROM cartridges as storage and Kutaragi saw magnetic media as better choice and he thought Nintendo had awful sound.

Kutaragi began secret collaboration with Nintendo. Nintendo decided not to use Kutaragi's floppy disk technology, but they liked his unorthodox views. In 1986 he had offsite meeting with Nintendo to talk about their upcoming 16-bit system. Kutaragi offered to make a sound chip for the new upcoming 16-bit system: Super Famicom or SNES. Nintendo agreed on the offer, but Kutaragi was back then in no position to officially negotiate about it. He secretly designed and built the chip. Only his boss Masahiko Morizono knew about his work. Near the launch date of SNES Nintendo wanted to release a joint statement touting Sony's new sound chip. Kutaragi's work finally came public. Nintendo was officially Sony's rival competing with Sony's MSX home computers. Many of the top executives of Sony were furious of Kutaragi's work made in secrecy. However the CEO of Sony, Norio Ohga, supported Kutaragi and in the end Sony gave Nintendo permission to use the chip in SNES.

Birth of PlayStation

Next Kutaragi tried to make Nintendo to CDROM technology as storage media opposed to use ROM cartridges. Ohga created a special unit to work on that project, separate of Sony's major business. Soon Kutaragi felt almost nobody wanted to work with him inside the company. He felt very lonely, but didn't want his dream to die. He continued relentless to lobby his vision of that the future was digital not analog. The MSX computer was dead. Kutaragi threatened to leave the company, which was very rare in Japan at that time.



"I was very sad. But I had a strong passion, so I decided to create my own space to make my vision a reality, even if that meant leaving Sony" (from The Pirate Inside)

The CDROM add-on called PlayStation for SNES. The deal was however off. Sony wanted 25% of all the profits which Nintendo would make by selling PlayStation and PlayStation games. Nintendo thought this was too much and went to Philips instead. Instead of totally abandoning the project, Sony decided to take a risky route. They formed a new division called **Sony Computer Entertainment Inc (SCEI)**, a name coined by Kutaragi (he wanted it to sound more grand, than just a games division).

With the help of Ohga's support Kutaragi could continue the project and develop it into a full-blown game console of its own. Nintendo saw this as breach of contracted and sued Sony to stop them from releasing PlayStation, on the grounds that they owned the name. The court decision was in favor of Sony.

PlayStation was released in Japan on 3rd December 1994 and on 9th September 1995 in USA and on 29th September 1995 in Europe. PlayStation was an instant hit. Even though on 23rd June 1996 Nintendo released a technologically superior console called Nintendo 64, Sony PlayStation continued to outsell Nintendo. A big key to PlayStation's success was the fact that instead of using ROM cartridges like Nintendo, they used CDROM as the medium of the games. CDROMs are easier to copy and cheaper to manufacture than ROM cartridges.

The revenues of Sony Computer Entertainment started to sky-rocket. In fiscal year 1999 they already represented the 40% of the total operating income of the company. Suddenly the "toy thing" was important for Sony. Kutaragi's former critics were praising his courage and persistence.

PlayStation 2

Next Sony took an even bigger gamble by spending about \$2.5 billion to develop and launch the successor of PlayStation. On the 4th March 2000 Sony released PlayStation 2 (PS2), which was a backward compatible successor for PlayStation. PlayStation 2 was the first game console to have the build-in capability to play DVDs. In fact many first-buyers bought PS2 to play DVDs, even though stand-alone DVD players were much cheaper than the cost of the PS2 console.

Both PS1 and PS2 have sold slightly over 100 million units, making them by far the best game consoles of all time.

But Kutaragi's vision didn't stop there. He saw PS2 as a Trojan horse for people to bring a device to their living rooms to play



games and later use it for all kinds of broadband entertainment. So far this vision has not become reality in most homes. In December 2003 Sony released PSX (DVR), which is a Sony Media Center, based on the PS2 console and including a DVD recorder and 160 or 250 GB hard drive to store TV programs and digital photos. PSX also had the capability to surf on the Web, send email and access streaming media over the Internet. PSX's lukewarm response was disappointment to industry analysts and people at Sony. As a result of the bad sales of PSX, it was never released outside Japan.



PlayStation Portable

Next Kutaragi and Sony wanted to challenge Nintendo in their dominance of the handheld gaming market. Sony PlayStation Portable (PSP) was released on 12th December 2004 in Japan and 24th March 2005 in North America and finally on first September 2005 in Europe. PSP has not been able to sell as well as Nintendo's rivaling consoles like Nintendo DS, but nevertheless it has been a decent success with over 8 million consoles sold up till December 2005.

Kutaragi Loses Power Struggle at Sony

In 1995 Ohga selected Nobuyuki Idei as next president of Sony. The decision appalled almost everyone in the company. In 1998 Idei became co-CEO of the company and the sole CEO in 1999. Ohga, who has had close relations with Kutaragi, retired fully in 2003, and Idei became the sole chairman.

Kutaragi is currently the president and CEO of Sony Computer Entertainment Inc (SCEI), the videogames division of Sony Corporation. SCEI is the biggest company in the game industry. Since 1997 many people have been guessing and hoping that Kutaragi would be the next president of Sony. The reason why this didn't happen is probably because Kutaragi has cool relations with Idei and Kutaragi has been openly criticizing Sony's policy of using proprietary technologies and Digital Rights Management (DRM), which Kutaragi sees as one reason for the Apple iPod's success over similar Sony products. Sony Corporation had \$288 million losses in 2004, which are blamed on Kutaragi. As a small shock to everyone outside the company Kutaragi was demoted from the board of directors in 2005 and replaced as the head of consumer electronics. Kutaragi's position was given to Howard Stringer, who became the first Western person to be included in the top management of a big Japanese company.

Kutaragi's Critic

Recently Kutaragi has been praising the greatness of the PS3, the successor of PS2. He has said Microsoft's Xbox 360 is just "Xbox 1.5".

Kutaragi was asked in an interview what he would do if he would run Sony Corporation. His reply was:

"The company must revive its original innovative spirit, when it boasted engineering finesse with the transistor radio, Walkman and Trinitron TV".

"Sony also has been hurt by its insistence on making its content proprietary"

I personally see that Kutaragi's vision is correct, but only the future will show if he will ever take the reigns at Sony.



Pictures from top to bottom: Kutaragi, PlayStation, PlayStation 2, Kutaragi showing PSP, Kutaragi showing PS3.

References

- Reiji Asakura: Revolutionaries at Sony: The Making of the Sony Playstation and the Visionaries Who Conquered the World of Video Games
McGraw-Hill Publishing Co. 2000, ISBN: 0071355871
- Gary Hamel: Leading the Revolution (pages 170-78)
Plume 2002, ISBN: 0452283248
- Robert I. Sutton: Weird Ideas That Work: 11 1/2 Practices for Promoting, Managing, and Sustaining Innovation
Free Press 2001, ISBN: 0743212126
- Adam Morgan: The Pirate Inside : Building a Challenger Brand Culture Within Yourself and Your Organization
Wiley 2004, ISBN: 0470860820
- Wikipedia entry on Ken Kutaragi
Accessed on 7th March 2006, available on
http://en.wikipedia.org/wiki/Ken_Kutaragi
- Wikipedia entry on Sony
Accessed on 7th March 2006, available on
http://en.wikipedia.org/wiki/Sony_Computer_Entertainment
- Wikipedia entry on Sony PlayStation 2
Accessed on 7th March 2006, available on
http://en.wikipedia.org/wiki/Sony_Computer_Entertainment#PlayStation_2
- Wikipedia entry on Sony PlayStation
Accessed on 7th March 2006, available on
<http://en.wikipedia.org/wiki/PlayStation>
- Wikipedia entry on Sony PSP
Accessed on 7th March 2006, available on
http://en.wikipedia.org/wiki/Sony_psp
- Jim Frederick: 2003 Global Influentials - Ken Kutaragi CEO Sony Computer Entertainment Playing His Way to the Next Level
Accessed on 7th March 2006, available on
<http://www.cnn.com/SPECIALS/2003/global.influentials/stories/kutaragi/>
- Kenneth Li: Meet the Man behind Sony's PlayStation
The Industry Standard, first September 2000
Accessed on 7th March 2006, available on
<http://archives.cnn.com/2000/TECH/computing/09/01/meet.ken.kutaragi.idg/>
- Hirohiko Nizumi: Kutaragi Forced off Sony's Board
Gamespot News, 7th March 2005
Accessed on 7th March 2006, available on
http://www.gamespot.com/news/2005/03/07/news_6119822.html
- Great Minds, Great Ideas Project - Innovator Profiles - Ken Kutaragi
Ken Kutaragi Interview: PlayStation's Creator and Unwavering Pitchman
Accessed on 7th March 2006, available on
<http://eet.com/disruption/profiles/kutaragi.jhtml>
- Alec Matias: The Kraziness of Ken Kutaragi
ShackNews, 7th July 2005
Accessed on 7th March 2006, available on

- http://www.shacknews.com/extras/kutaragi/070705_kutaragi_01.x
- Yuri Kageyama: Demoted Sony Electronics Guru Is Outspoken
Abc News, 4th April 2005
Accessed on 7th March 2006, available on
<http://abcnews.go.com/Technology/wireStory?id=640181>

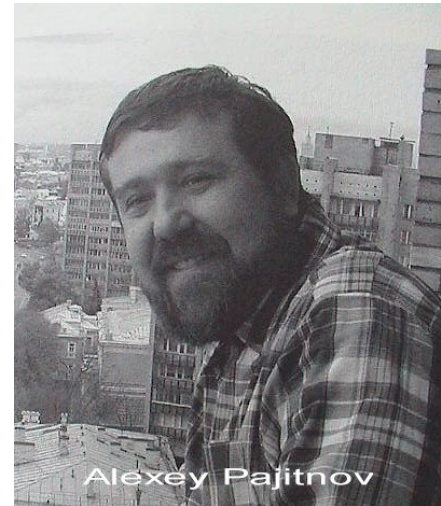
Alexey Pajitnov (1956-) – Creator of Tetris

Alexey Pajitnov, a Russian mathematician and programmer, invented Tetris in 1985. Tetris was the first game to reach a Western audience from behind the "iron curtain". It became a huge hit and ranks #2 in the best-selling games of all time list. After a long and complicated legal battle Nintendo finally acquired global handheld and home video game rights to Tetris.

Childhood and Education

Alexey Pajitnov (sometimes transliterated Pazhitnov), was born in 1956 in Russia. He grew up in Moscow, where his father was an art and theater critic and his mother was a journalist. As a child his passions were mathematics and films. His mother wrote for a weekly cinema magazine and young Alexey got to attend the yearly Moscow Film Festival, where he watched 5 movies a day, fifty in 10 days. *"It was the only window to the outside"*, Pajitnov said.

Pajitnov was a good student, especially in mathematics. He was a finalist in the Moscow mathematics competition at the age of fourteen. He spent the following 3 years in a specialized mathematics program. At the age of 15 he got his first contact with computers and created his first program, a number game.



According to Pajitnov most mathematicians are strange people. Pajitnov describes himself as a normal schoolboy who played cards, drank vodka and dated girls.

After his university studies Pajitnov got a teaching job at the department of mathematics applications of the Moscow Institute of Aviation; a technical university. He liked his teaching job, but one day he quit. His passion towards mathematics had been replaced with computers.

"It doesn't matter to a hacker what he is working on – it could be a game or abstract math problem, but if a computer is involved, he is a god and can do whatever he wants inside that world."

Fascination for Pentaminoes Leads to Tetris

His next job was at the computer centre of the Soviet Academy of Sciences, a Soviet-government-founded research & design centre. He spent many long days and nights working with archaic a Soviet microcomputer Electronica 60, drinking black coffee and smoking unfiltered cigarettes. Pajitnov had an interest in puzzles and he had read about pentaminoes, geometric puzzles invented by the American mathematician Solomon Golomb. Pentaminoes consisted of shapes made out of 5 squares: the letter T, L and so on. The pieces had to be fitted together to make a rectangle.

In 1985 he envisioned an electronic version of the pentamino puzzle, where randomly generated pieces would appear with increasing speed. He experimented with different computer versions of the game and settled on a simpler version where each piece was made out of four squares instead of five. From the Greek word meaning four, he named the game Tetris.

With four squares one can have 7 different shapes. Seven seemed to be perfect number as many psychologists claim the human mind can process about 7 things (numbers, shapes, concepts) at the same time. The Electronica 60 had no graphics capabilities so the puzzles pieces were actually

made up of space outlined by brackets. The computer randomly selected one of the 7 shapes. It appeared on the top of the screen and slowly started to fall down. The player could rotate it and move it from left of the right. The aim of the game was the make the pieces fit so that the squares formed an unbroken line from left to right. Then one row was removed. At best one could remove four lines at the same time using a 4-square long straight piece vertically. This earned the best points and it is often called Tetris as well.



Pavlovsky and Gerasimov

Pajitnov envisioned the game would be more fun if it would have colorful real-time graphics. Pajitnov's friend Dmitry Pavlovsky (or Pevlovsky) introduced Pajitnov to Vadim Gerasimov, a young self-taught hacker who was just 16 at the time. Gerasimov was a thin tall guy with thick eye glasses and a real knack for programming, including breaking copy protections.

Gerasimov worked with Pajitnov for two months to make a color version of Tetris on IBM PC compatible computers. Pavlovsky added a high score table to it. When the program was running bug free they copied it to computers at the Computer Center via disks. Pajitnov's colleagues congratulated him and his friends for creating an addictive game. Pajitnov's friend, who worked at the psychology institute gave the game to his staff, but it soon turned out that people were spending too much time playing the game. One night after everyone else had gone home someone deleted all the disks containing the game. This action did nothing to stop the extremely addictive game from spreading around. In November 1985 Tetris took second place in a computer game competition held in Zelenodolsk.

The Soviet Union didn't have copyright law for computer software as in Western countries and they greatly discouraged people from having private ventures. So Pajitnov had no good way of selling his game.

Robert Stein and Hungarian Tetris

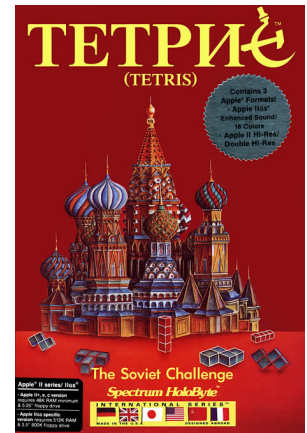
Tetris made its way to Budapest, Hungary and Hungarian programmers ported it to Apple II and Commodore 64. Robert Stein (1934-), an ex-Hungarian refugee, living in UK, had previously been selling Commodore Vic 20 computers. After realizing that the computers sold in direct proportion to the amount of software available, he decided to go into the software business. In 1982 he founded Andromeda Software to sell games and business programs made by Hungarian programmers. In July 1986 he saw Tetris and the game was so addictive that he could not stop playing it. *"I was not a game player. So if I liked it, it had to be a very good game"*, Stein said. He planned to get the rights of Tetris from Pajitnov and the other versions from Hungarian programmers. He sent a fax to Pajitnov, who had to go to another division and through lots of Soviet bureaucracy to send a simple

reply to Stein: “*Yes, we are interested. We would like to have this deal*”. Before securing the deal with the Russians, Stein already began selling the rights of Tetris – rights he didn’t have. He sold them to Mirrorsoft UK and Spectrum Holobyte, a company famous for making flight simulators.

On 5th November 1986 Stein sent a telex to the Soviets for a deal where they would receive 75% of what he would collect from Tetris as well as a \$10 000 advance. On 13th November 1986 Pajitnov's superior Evtushenko signed a telex stating that the Academy of Science's Computer Center was ready to transfer the copyright of the game to Andromeda, but only the IBM PC-compatible versions. Pajitnov didn't consider this making a contract: *"I had no idea that this kind of polite telex can be a document. I think of a document as something very serious, which needs to be signed, changed, and signed again; then you shake hands and drink champagne"*. The Soviets were not satisfied with Stein's offer pushing for 80% and a \$25 000 advance. Frustrated with the troubles of negotiating with the Soviets Stein made a secret plan to steal Tetris, claiming it was invented by Hungarian programmers.

Commercial PC Version of Tetris

At the same time the PC version of Tetris was released by Mirrorsoft and Spectrum Holobyte. Gilman Louie, a manager at Spectrum Holobyte, had suggested to package the game in a red box with an illustration of St. Basil's Cathedral and the word Tetris written with the R reversed, to imitate Cyrillic text and also with the last letter R formed out of a sickle and hammer. The programmers at Spectrum Holobyte added graphics and elements to the game, including an animation, which played at the start of the game. A Cessna flew across the screen and landed on Red Square, Moscow. This was homage to Matthias Rust, a young West German pilot, who had flown in a small Cessna airplane all the way from Helsinki to the Red Square, undetected by Soviet radar and air defenses – a huge embarrassment to the Central Committee of the Soviet Union.



The game became an immediate success and the media gave it lots of press coverage as it was the first game to come from behind the iron curtain.

Finally in June 1987 Stein obtained the license rights to Tetris for IBM PC and any other computer system.

Battle for the Rights

In January 1988 Tetris was released for many other home computers as well. The game got rave reviews and sold well. Pajitnov was interviewed in CBS Evening News as the inventor of Tetris – spoiling Stein’s plans to steal the rights of the game.

Pajitnov had been making Biographer software and contacted **Elorg**, short for **Electronorgtechnica**, to find out if it could be sold as educational software. In a meeting with Elorg's director, Alexander "Sasha" Alexinko, Pajitnov mentioned his troubles in selling the rights of Tetris. Alexinko told Pajitnov he should not be negotiating about it at all, as it was Elorg's task and told that all Soviet Academic institutions were forbidden to do business. Alexinko tried to stop the publishing of the game. Stein was in a tight spot and threatened them with an international scandal if the Soviets would stop the sales. Finally in May 1988 Stein signed a contract with Elorg to make Tetris for computers. The contract didn't include the rights to arcade and handheld versions nor any other, undreamt of, future platforms.



Henk Rogers and Bulletproof Software

In July 1988 Stein met Alexinko in Paris to get arcade rights to Tetris. At the same time Spectrum Holobyte and Mirrorsoft were already selling sub-licenses to the game. Spectrum Holobyte sold rights to Bullet-Proof Software, a company founded by Henk Rogers, to make Tetris video and computer games in Japan. At the same time Mirrorsoft gave exactly the same rights to Atari games in Japan and North America. Soon the two sister companies were in a fight. Robert Maxwell, the media mogul, was owner of both Mirrorsoft and Spectrum Holobyte. His own son Kevin Maxwell was running Mirrorsoft UK, so he decided in favor of Mirrorsoft. Gilman Louie of Holobyte insisted to at least honor the deal he had signed with Rogers, to allow Rogers to sublicense the floppy disk game in Japan. Jim Mackonochie of Mirrorsoft agreed on that. Hideyuki Nakajima of Atari Games wanted to exploit the Tetris rights as widely as possible. He planned to release both coin-up Tetris and a NES version of Tetris under the label of Tengen (Atari Games was not allowed to use the name Atari in home products, which was the property of Atari Inc., so they used the name Tengen instead). Louie called Rogers to apologize that the video games rights of Tetris for Japan and USA had been sold to Atari without his knowledge. Rogers had the floppy disk rights, but if he wanted the other rights he would have to negotiate with Atari. Soon Rogers found out that Japanese coin-op rights had already been sold to Sega. Rogers managed to make a deal with Hide Nakajima of Atari to get the NES rights of Tetris for Japan.

Bulletproof Software's floppy disk version of Tetris was released in November 1988 in Japan and it sold 2 million copies. Minoru Arakawa, the president of Nintendo of America (NOA) and son in law of Hiroshi Yamauchi, the CEO of Nintendo, had already decided he wanted Tetris for the upcoming Game Boy, handheld video game system. Arakawa's lawyers at NOA had figured out Mirrorsoft probably didn't have the hand-held rights of Tetris. Arakawa made a deal with Rogers. If Rogers could get the hand-held rights of Tetris, NOA would sublicense the game from him. Arakawa also showed the prototype of Game Boy to Rogers. Howard Lincoln, the CEO of NOA described Henk Rogers: *"If you've met Rogers, you know that he is capable of finding his way in the middle of any storm. Telling him that we were ready to license from him was like showing red meat to a hungry lion."*

On 15th November 1988 Rogers sent a fax to Robert Stein in London to bid for the worldwide hand-held rights of Tetris. Rogers replied that he was still in the process of getting the rights from Elorg. Stein immediately contacted Jim Mackonochie of Mirrorsoft UK. Stein knew that Alexinko, the director of Elorg, had been replaced by Evgeni Nikolaevich Belikov, a man characterized by many as bullheaded, vicious and a very sharp man.

Three Men Travel to Moscow

Henk Rogers, Robert Stein and Kevin Maxwell all decided to travel to Moscow to settle the licensing issue.

On 2nd February 1989 Rogers got to Elorg first. Pajitnov immediately liked Rogers. Out of the three men he was the only one who really loved Tetris and, as he hacker, they could speak a common language. He signed a contract for the hand-held rights of Tetris. Afterwards Rogers showed the Famicom/NES version of Tetris to the Russians. Belikov was shocked. Rogers explained that he had bought the video game rights from Atari/Tengen. Belikov said he had never heard of Atari. Rogers calmed down the Russians and promised to pay them royalties on the 130 000 cartridges sold. Rogers wrote a check for \$40 712 and promised more would be on the way. Rogers saw opportunities to get the home console rights of Tetris, but he would have to fight Atari, and he knew Nintendo would be on his side.

Later that same day Stein, who only had the rights for the computer version of Tetris, made it to Elorg. Belikov told Stein he would continue the negotiations only if Stein would sign an addendum to the original contract. Stein didn't read the addendum carefully and didn't notice that it had a part that defined computers, referring to the original contract, as "PC computers which consist of processor, monitor, disk drive(s), keyboard and operating system". He knew the Russians were unhappy, because they had not gotten royalties from him in time and the paper was mostly about the payment schedules. Later Stein understood everything in the contract was a "smoke screen" to cover that important line and he realized that Rogers had helped the Russians.

On 22nd February 1989 Stein returned to the Elorg office. He made an offer for the hand-held and coin-op rights of Tetris. Belikov told him that he could only get the coin-op rights and Stein had to pay dearly for them. Stein had to come up with an advance of \$150 000. Stein signed the contract and the amendment on 24th February 1989.

On 22nd February 1989 Kevin Maxwell also had a meeting with Elorg. Belikov showed him Roger's Famicom version of Tetris. Maxwell didn't know his own company had sold some of the rights of Tetris to Atari. When Maxwell saw the Mirrorsoft name on the game cartridge he insisted it was a pirated copy. Maxwell tried to get the handheld rights of Tetris, but instead he ended up only with a paper stating that he had rights to bid on any of the remaining rights of Tetris.

Bulletproof Software and Nintendo Make a Deal

Henk Rogers and Bulletproof Software (BPS) went to make a deal with Arakawa of NOA about the console rights of Tetris. The deal turned out to be worth about \$5-\$10 million to BPS.

On 15th March 1989 Rogers returned to Moscow with Arakawa and Lincoln to make an offer for the console rights of Tetris. Pajitnov invited the 3 men to his home. There Pajitnov showed them his new game Welltris, a 3D version of Tetris. Arakawa presented Pajitnov's son Pyotr with a Game Boy with his father's game in it.

On 22nd March 1989 Nintendo made a deal for the worldwide console rights of Tetris. Elorg got an advance cash payment of about \$3 to \$5 million. After the contract with Nintendo Belikov faxed to Mirrorsoft that they, Andromeda and Atari/Tengen had no right to sell Tetris on video game systems and that Nintendo would have those rights. Arakawa, Lincoln and Rogers had a party in a Moscow hotel room.

Legal Battle in Court

On 3rd March 1980 Howard Lincoln faxed a cease-and-desist order to stop manufacturing any version of Tetris for NES. Atari decided to fight back. On 13th April 1989 Atari filed an application for a copyright of the audiovisual world, the underlying computer code and the soundtrack of Tetris for NES. The application didn't mention Pajitnov's name. In the meanwhile Robert Maxwell tried to use his vast media empire to get back the rights of Tetris. Maxwell got a promise from Mikhail Gorbachev himself that he "should no longer worry about the Japanese Company". In late April 1989 Tengen sued Nintendo. After ensuring that their case was air-tight with Elorg, Nintendo counter-sued Atari.

On 17th May 1989 Tengen released their version of Tetris with a full-page color ad in USA Today. That version was designed by Ed Logg, the veteran game designer and programmer of Atari. Many game hobbyists consider the Tengen version to be best version of Tetris.

On June 1989 the court case between Atari and Nintendo began. The deciding fact of the case was the definition in the contract which Belikov had made Stein to sign. Atari argued that NES was a computer. In Japan it was sold under the name Famicom, short for family Computer, and Nintendo had planned peripherals like a keyboard and floppy drive to be attached to it. On 15th June the judge Fern Smith decided that neither Mirrorsoft nor Spectrum Holobyte had the video game rights of Tetris and therefore didn't have the legal right to give those to Atari. As a result, on 21st June 1989, the Tengen version of Tetris was taken off the shelves. It only managed to sell around 100 000 copies and several hundred thousand copies were still in the warehouse, and had to be destroyed. The Tengen version soon became a collector's item, selling for \$150 per copy.

Enormous Success

In July 1989 Nintendo finally released its own version of Tetris for NES. It sold about 3 million units in USA. At the same time they released Game Boy, which was packed with Tetris. The world was hit with hand-held Tetris-mania. The Game Boy version of Tetris remained on the top of game sales list for 3 years in a row, only to be topped by Super Mario Bros 3, the single best-selling game of all time. The Game Boy version of Tetris sold about 30 million copies and undoubtedly helped Nintendo to sell many Game Boy machines and smash the competition of Atari's Lynx and Sega's Game Gear hand-held consoles. Each customer who bought Game Boy bought an average of 3 new games per year. David Sheff estimates in Game Over that Tetris, not counting Game Boy, brought Nintendo about \$80 million. Counting Game Boy Tetris can be estimated to have brought Nintendo about \$2 billion, taking into account the increased sales of Game Boy, which would not have happened without Tetris.



Atari Games still had the coin-op rights of Tetris and ended up selling between 15 000 to 20 000 Tetris arcade game units.

Robert Stein made a total of about \$250 000 on Tetris. Robert Maxwell's media empire collapsed during the struggle and he died in the middle of suspicious circumstances.

None of the Russians behind Tetris made big money out of it. The money went to the government, but in their gratitude they presented Alexey Pajitnov with an IBM PC 80286 clone computer and a nicer apartment for his family to live in. Pajitnov got to travel abroad, both to the USA and Japan many times.

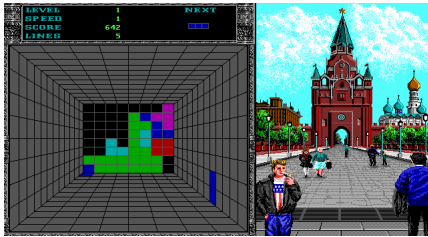
Pajitnov Didn't Become Rich

Pajitnov lost around \$40 million in royalties with Tetris. But he doesn't feel bad about it. In an interview Pajitnov told: *"I would have been in prison for sure had I gone directly to Nintendo. I would have had to be a dissident and possibly been cheated out of everything anyway. So it wasn't worth it."* In 1996 the Soviet restrictions dissolved and the rights of Tetris were reverted back to Pajitnov.

In that same year Rogers helped Pajitnov to organize **The Tetris Company LCC**, which now owns the rights of Tetris and earns royalties for Pajitnov.

Tetris Sequels

After Tetris, Pajitnov designed a game called **Welltris** (Sphere Inc/Spectrum Holobyte Inc. 1989) with Andrei Sgenov. It was a 3D version of Tetris, where the pieces were 3 dimensional and the player could move them into all four directions and rotate them while they were dropping down in top-down pseudo 3D-view. Some people find it even more fun than Tetris.



A year later Spectrum Holobyte published a game called **Faces** (Sphere Inc/Spectrum Holobyte 1990). It was an action puzzle game similar to Tetris with an original concept by Alexey Pajitnov and Vladimir Pokhilko. The aim of the game is to assemble complete faces out of dropping pieces. It contained lots of famous faces from all periods of history. The game was lack-luster compared to Tetris and Welltris.

Tetris has had lots of direct sequels, which retain the original game-play, but they just add some additional features like two-player game, new block types e.g. **Super Tetris** (Sphere Inc/Spectrum Holobyte 1991) and **Next Tetris** (Blue Planet Software/Bullet-Proof Software 1999).

Pictures: (above) Welltris and (right) Faces



Intec and El-Fish

In 1991 Alexey Pajitnov and his best friend Vladimir Pokhilko moved to USA. Pokhilko and Pajitnov started a company called INTEC to make “human software” for “people’s souls”. They had 3 basic rules:

- *The software needs to be “aesthetically beautiful”*
- *The software needs to be constructive.*
- *The software needs to bring feeling to people that they would not otherwise enjoy.*

I think these rules are good for game design as well.

Together with Vladimir Pokhilko, Pajitnov created **El-Fish** (AnimaTek/Maxis 1993), also called simFish. It was a fish and fish-tank simulator. In it each fish had its own unique Roe, similar to the genome. The user could use selective breeding and mutation to create new fish and place them in virtual aquariums. The user could select different backdrops for the fish swim in, including moving objects like a cat paw and a small plastic scuba driver. El-fish could also function as a screen-saver.



Breakthru!

Pajitnov continued to invent new puzzles games. Next he designed **Breathru!** (Spectrum Holobyte 1994) where the aim of the player was to clear a wall of blocks before time runs out. The player can click a group of two or more blocks to make it disappear. The basic idea of the game bears similarity with “**Chain Shot!**”, a puzzle game originally invented in 1985 by Kuniaki Moribe for the Fujitsu FM-8/7 series of computers and distributed in Japanese computer magazine called Gekkan

ASCII. The game was re-released as **Same Game** in 1992 by Eiji Fukumoto for UNIX platforms and later by Wataru Yoshioka for NEC PC-9801. The latter version was spread widely and ported to various platforms as free and commercial versions.



Pictures: Knight Moves (left) and Slices puzzle from Pandora's Box (right)

Knight Moves

The original idea for **Knight Moves** (Kinesoft Development Corporation/Spectrum Holobyte 1995) came from Pajitnov. It put a new twist to the game of chess. In the game the player is in control of a knight, which moves in L shaped patterns, like in chess, over a board filled with enemies, hazards, power-ups and treasures. The player has to make decisions quickly as the knight is constantly moving.

Pandora's Box

In 1996 Pajitnov moved to work for Microsoft Game Studios. He designed a game called **Pandora's Box** (Microsoft Game Studios 1999), which contained 10 different kinds of puzzles, and a total of 350 puzzles.

Tragedy for Pokhilko

On 23rd September 1998, Pajitnov's best friend Vladimir Pokhilko brutally murdered his wife Elena Fedotova and their 12-year-old son Peter, apparently during their sleep, and then cut his own throat. Pokhilko had been under pressure when his venture with Henk Rogers was trying to raise money. But the real reasons for Pokhilko killing his own family and then himself, still remain a mystery.

Hexic HD

Pajitnov still continues to develop games. His most recent game is **Hexic HD** (Microsoft 2005), a puzzle game featuring color hexagons, which the player can rotate to touch two or more identical pieces. Hexic HD is pre-loaded to all hard disks on Microsoft Xbox 360 video game consoles.

Screenshots from MobyGames

References

- Sheff, David: Game Over- Press Start to Continue
Game Press 1999, ISBN: 0-966 9617-0-6

- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition)
Osborne 2004, ISBN: 0-07-223172-6
- Wikipedia entry on Alexey Pajitnov
Accessed on 7th March 2006, available on
http://en.wikipedia.org/wiki/Alexey_Pajitnov
- Wikipedia entry on El-Fish
Accessed on 7th March 2006, available on
<http://en.wikipedia.org/wiki/El-Fish>
- Wikipedia entry on Tetris
Accessed on 7th March 2006, available on
<http://en.wikipedia.org/wiki/Tetris>
- Wikipedia entry on Hexic HD
Accessed on 7th March 2006, available on
http://en.wikipedia.org/wiki/Hexic_HD
- FreeDictionary entry on Same Game
Accessed on 7th March 2006, available on
<http://encyclopedia.thefreedictionary.com/SameGame>
- The Tetris Saga
Accessed on 7th March 2006, available on
<http://www.atarihq.com/tsr/special/tetrishist.html>
- NNDB entry on Alexey Pajitnov
Accessed on 7th March 2006, available on
<http://www.nndb.com/people/648/000057477/>
- Vadim Gerasimov: Tetris Story
Accessed on 7th March 2006, no longer available on
<http://vadim.www.media.mit.edu/Tetris.htm>
- Matt Beer, Jacob Fries and Diana Walsh: Pushed Past the Brink (about Vladimir Pokhilko)
San Francisco Chronicles, 24th September 1998
Accessed on 7th March 2006, no longer available on
<http://www.sfgate.com/cgi-bin/article.cgi?file=/examiner/archive/1998/09/24/NEWS7742.dtl>
- MGandhi: Tetris, a puzzle of real life
Accessed on 7th March 2006, no longer available on
<http://www.kinox.org/articles/tetris.html>

Peter Molyneux (1960-) – Creator of Populous, Theme Park, Dungeon Keeper, Black & White and Fable

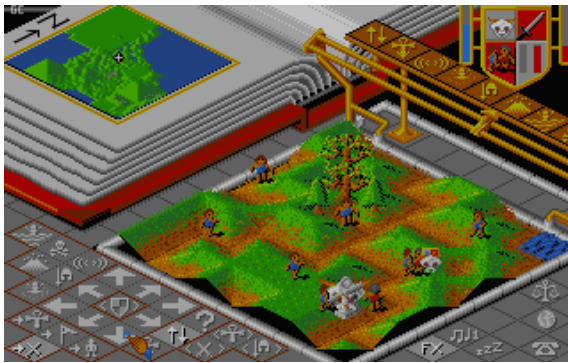
Peter Molyneux is famous for creating the "god game" genre of games, where the player indirectly influences the life of several virtual creatures, instead of directly controlling them. His most famous game designs are: **Populous**, **Theme Park**, **Dungeon Keeper**, **Black & White** and **Fable**.

Bullfrog Productions

Peter Molyneux was born in 1960 in Guildford, Surrey, UK. In 1987 he founded Bullfrog Productions with Les Edgar. Bullfrog productions soon became well-known for making high-quality games for popular home computers of its era. One of these was **Flood** (Bullfrog Productions/Electronic arts 1990), a platform jumping game, where the character could climb on walls, hang up-side down on them, swim in water and use a wide variety of weapons from grenades to flamethrower and a time-bomb, instead of just jumping.



Populous I & II and Powermonger



The most well-known Bullfrog game is perhaps its third title called **Populous** (Bullfrog/Electronic Arts 1989). The game was programmed and designed by Molyneux. Populous is widely regarded as the first God game. It was first developed for Commodore Amiga, Atari ST and PC. It used colorful isometric 3D graphics. In Populous the player adopts the role of a deity, whose task is to guide a group of people by directing them to do things, raising and lowering land and practicing divine intervention. The game

became a huge success and spawned several sequels and literally created a sub-genre of its own. Populous sold over 4 million units. Molyneux also did the design and programming for the sequel: **Populous II: Trials of the Olympian Gods** (Bullfrog/EA 1991) where he increased the number of divine intervention effects from 8 to 29.

Powermonger (Bullfrog/EA 1990), the second Molyneux game for Bullfrog, was a real time strategy game. It has many similarities with Populous, including the pseudo 3D isometric view of the landscape, which allowed rotating it in 90 degree intervals. It featured fairly advanced artificial life for a game its time. Unlike in Populous the player could not form new land by raising it from sea, but he could control the weather.

Syndicate

Molyneux produced **Syndicate** (Bullfrog/Electronic Arts 1993), a dark violent action strategy game set in the future of our planet earth. The player is in charge of a corporation and his task is to take over regions, and to increase the power and resources and money of the syndicate. The game used isometric 3D graphics. Syndicate struck a chord with hard core gamers, but other people usually found the game to be a bit too hard. The game had



several sequels: **Syndicate: American Revolt** (Bullfrog/Electronic Arts 1993) and **Syndicate Wars** (Bullfrog Productions 1996).

Theme Park

Molyneux was the project leader and lead programmer of **Theme Park** (Bullfrog/Electronic Arts 1994). The game put the player in charge of an amusement park, beginning with a small piece of land in the UK and a few hundred thousand dollars money. The game has two sequels called **Theme Park World** (sold as Sim Theme Park in USA) and **Theme Park Inc.** They acted as an inspiration to the Rollercoaster Tycoon series of games. Its thematic sequel by Bullfrog was **Theme Hospital** (Bullfrog/Electronic Arts 1997), but Molyneux was not part of making that game.



Pictures: Theme Park (left) and Magic Carpet (right)

Magic Carpet

Molyneux produced and designed **Magic Carpet** (Bullfrog/Electronic Arts 1994), a unique kind of first person shooter, where the player controlled a wizard, flying over water and land with a magic carpet and destroying computer controlled monsters with a variety of spells. The game package came with red and blue glasses, which allowed the player to experience the game in a real-time stereogram mode. It also had a multi-player game, supporting up to 8 players. Despite its technical excellence it never became as popular as Doom and some other first-person-shooters of the era, mainly due to its higher requirements for hardware.

Hi-Octane

Molyneux produced **Hi-Octane** (Bullfrog/Electronic Arts 1995), a 3D racing game for PC, Sony Playstation and Sega Saturn. The game featured wide open tracks, which gave lots of freedom to the player, but it was not a commercial success like **Wipeout** (Psygnosis 1995), which had better visuals.



Dungeon Keeper

Next Molyneux designed and produced a very interesting strategy game called **Dungeon Keeper** (Bullfrog/Electronic Arts 1997). Before Dungeon Keeper there had been numerous games, where the player or player characters had to search and loot a dungeon infested with various monsters and traps. The Dungeon Keeper game put the player in the reverse role. The player builds the dungeons, recruits the monsters, sets the traps and fends off the computer controlled heroes, who regularly attempt to come to conquer the dungeon. The game uses a modified Magic Carpet engine.

Lionhead Studios

Molyneux left Bullfrog Productions in August 1997 to form his own development studio called **Lionhead Studios**. Both Bullfrog and Lionhead are now owned by Microsoft.

Black & White

Black & White (Lionhead Studios/EA 2001) was the first highly anticipated title from Molyneux and his new studio. It was a god game, like Populous, set on an island ruling over a tribe. The tribe has a creature, like a huge pet, which can be trained to do almost anything that the game's artificial intelligence will understand. Each player action is evaluated in a good/bad spectrum. The "godly" hand, which the player uses for manipulating the game world and the temple, where the creature sleeps, changes their color from pearly white to dark red, depending on how good or evil the player's actions have been. The creature also changes its color depending on its behavior, but an evil player can have a good creature and vice versa. Despite the fact that Black & White suffered many game-play problems, it sold several million copies. The game helped to pioneer



mouse gesture recognition, a technique which allowed players to cast spells using specific mouse movements. **Black & White 2** (Lionhead Studios/EA 2005) had improved graphics and ways of teaching and guiding the creature, but so far the game has received a so-and-so response from game critics and players.



Hyping the Fable

Next Molyneux began to work on Project Ego, later renamed **Fable** (Lionhead Studios/Microsoft Game Studios 2004). It was released solely for Xbox in 2004, but a year later as an expanded version, called **Fable: The Lost Chapters** (Lionhead/Microsoft Game Studios 2005) was made for PC as well. The game was overly hyped in the media and, in his typical fashion, Molyneux discussed about the possible game features openly with the press. Many of the “advertised” features never made it into the published game, making the game playing audience feel cheated. Molyneux had to make a public apology about the over-hyping of the game.

The Movies

The Movies (Lionhead/Activision 2005) is the latest game produced and designed by Molyneux. It puts the player in the role of a Hollywood film mogul, running a studio and making films. The game contains pretty much all the major aspects of making a film from scriptwriting, to staff management and post production. It also allows the players to share



films over the internet. Outstanding player-made films will be nominated for a Stanley, the equivalent of the Oscars for this game.



In 2004 Molyneux was appointed Officer of The Most Excellent Order of the British Empire (OBE) for his services to the computer games industry. In 2004 he was also appointed to the hall of fame of the Academy of Interactive Arts & Sciences.

Screenshots from MobyGames

References

- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition)
Osborne 2004, ISBN: 0-07-223172-6
- Wikipedia entry on Peter Molyneux
Accessed on 6th March 2006, available on http://en.wikipedia.org/wiki/Peter_Molyneux
- MobyGames entry on Peter Molyneux
Accessed on 6th March 2006, available on <http://www.mobygames.com/developer/sheet/view/developerId,1274/>
- Alfred Hermida: Fable Creator Explains Online Apology
BBC News, 8th October 2004

Accessed on 6th March 2006, available on
<http://news.bbc.co.uk/1/hi/technology/3724674.stm>

- James Wagner Au: The Lord of Game Developers
Accessed on 6th March 2006, available on
<http://archive.salon.com/tech/feature/2000/05/05/molyneux/print.html>
- Academy of Interactive Arts & Sciences, Hall of Fame Inductees
<http://www.interactive.org/awards/halloffame/inductees.asp>

Jeff Minter (1962-) - One-Man Software Development Team Called Llamasoft (1982-)

Jeff Minter, calling himself "Yak", is a legend in the game industry. He is the founder of Llamasoft. He usually works as a one-man team, doing practically everything himself for his games, including design, programming and sound effects. He has made games for numerous hardware platforms from home computers to exotic video game machines (many of which have faded out of the market as soon as he has made programs for them). His games are famous for containing llamas, camels and sheep, zany humor and psychedelic audio-visuals.

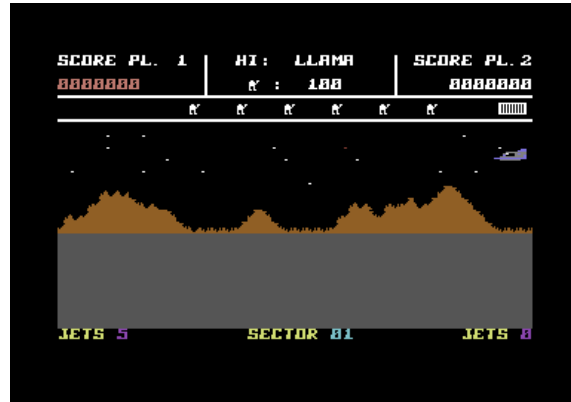
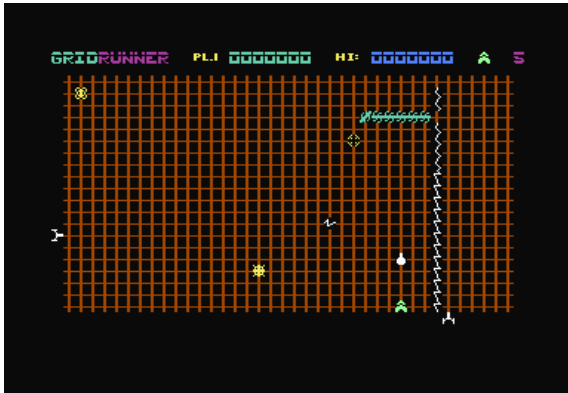


Early Years

Jeff Minter was born in Reading, UK, 22nd April 1962. During his college years he studied mathematics, physics and English and got his first computer experiences with a Commodore PET home computer. He also played Space Invaders, which got him really interested in video games, so much that he wanted to make them himself.

At first he taught himself the BASIC programming language, but he noticed that it was not fast enough for fast-action paced games and programs he wanted to create. Then he learned 6502 assembly language, which allowed much faster execution.

He made a couple of games for the Sinclair ZX80/ZX81, published by Dk'tronics, but there they didn't treat him well. According to Minter most of the home computer games of that time were unbelievably bad. He decided he could do better himself.



Pictures: Gridrunner and Revenge of the Mutant Camels

Birth of Llamasoft

His first commercial game was **Andes Attack** for Commodore VIC-20 in 1982. He founded his own company **Llamasoft** to sell it. The game was a fairly moderate success. A bigger success came with the game **Gridrunner** (Llamasoft 1982), originally made for VIC-20 in 1983, and later for other platforms including: C64, C16, Sinclair ZX Spectrum and Atari ST. His mother and father did the administrative work of Llamasoft and he made the games. Other notable game releases are: **Attack of the Mutant Camels** (Llamasoft 1984) and **Revenge of the Mutant Camels** (Llamasoft 1984).



Llamatron

In 1991 he published the first British shareware-game **Llamatron** for Atari ST. He later ported the game for Commodore Amiga and PC. The game is based on William's arcade classic shooter **Robotron 2084** (Williams 1982). The game's graphics were crude for its time, but many people, including myself, consider it to have one the best game-plays of all time. There is no fire button, but instead the game's main character, a llama, continuously spits laser beams to destroy various enemies and obstacles. The game features two control modes: one like in the original Robotron, where there are two joysticks, one to control the direction of firing and one to control movement. Also featured was a new control scheme for those who only have one joystick (or who want to play together with their friend on a computer with just two joystick ports). In the second mode the llama shoots in the same direction in which it is moving and pushing down the fire button locks the direction of fire, so that it remains the same even if the llama moves to another direction.

The game has 100 levels, each limited to one screen. The goal is to play through all levels, beat Ozric tentacle on level 99 and get to herd heaven on level 100. Then the game levels start to repeat again, only this time they are even harder. Each level begins so that the player is located in the middle of the screen and enemies, and sometimes a few static obstacles, are randomly placed around the screen. Most of the enemies move towards the player or move along pseudo-random paths. The player needs to be constantly on the run and the game doesn't even offer an option of not shooting. This makes the game hectic, and most current 3D shooters feel like walking in a peaceful park in comparison. In Llamatron the game levels have random variations. They are never exactly the same, which gives the game so long-lasting entertainment value. Each level has a number of hoofed animals to rescue (before they are destroyed by enemies). In so called *herd levels* it is compulsory to rescue all animals, before advancing to the next level. One gets a bonus item on the next level if one manages to rescue all animals. Shooting opponents also often gives a bonus. The best of bonuses are super firepower (which can go through multiple enemies), reflecting shots, multiple shots, warp 5 levels and invulnerability for 10 seconds. Some of the levels are similar to the original Robotron, where the enemies, which range from deadly fast-food hamburgers to giant brains, which turn harmless poor hoofed animals into crazy zombie beasts, which rapidly seek to destroy the player. Some have floating goo, which behaves like asteroids in the game Asteroids (Atari 1979). Shooting it makes it split into smaller goo, which then again splits into smaller parts. Some levels have moving and deadly horizontal and vertical laser beams, which try to restrict the player's safe movement area. Some levels are filled with deadly rain drops. If a player manages to collect a moving umbrella the rain stops, making the game easier and stopping rain is necessary to advance further. Some levels have screaming Mandelbrot fractals, which shoot the player with missiles or ensuing goo. Level 29 features a toilet seat, which throws cyan toilet paper at the player. After destroying the toilet seat, it turns into a bunch of bouncing peanuts, each containing an extra

life bonus item. The levels get harder and harder and then at later levels the player needs to be in almost trance-like state, purely relying on instincts to survive the mayhem. The screen is so filled with moving enemies (many of them directly moving towards the player) that it is not possible to register them all. The game's audiovisuals are crude, but suit the game very well. The sound effects are memorable and funny, also containing a couple of short phrases, like "Oh shit!" when a player dies or "I love you" when a player collects a heart, which makes all the animals fall in love with it and pursue the player, making it easy to collect them all on that level.

The screen is constantly flashing with colors like a stroboscope to emphasize the psychedelic feeling. Minter didn't want to repeat his mistake of making the game too hard, which he did in **Iridis Alpha** (Llamasoft 1986) (many players consider Iridis Alpha to be insanely difficult). He included a *droid mode* in Llamatron to make the game more beginner-friendly. In droid mode the player is accompanied by a computer controller invulnerable character droid, which shoots at random enemies. It worked really well and Minter received lots of fan letters from people, who told him that they normally didn't play these type of games at all, but thanks to the droid mode they were able to get into the game. The game, which only took about 3 months to make, was a reasonable success and earned so much money to Jeff Minter that he could live on that for few years.

More Arcade Remakes: Tempest 2000 and Defender 2000

In 1990s Jeff Minter went to work for Atari, and developed **Tempest 2000** (Atari 1994) and **Defender 2000** (Atari 1996) for Atari Jaguar. As the names imply, they were remakes of classic arcade games: David Theurer's classic **Tempest** (Atari 1981) and Eugene Jarvis' **Defender** (Williams 1980). Tempest 2000 featured beautifully shaded 3D vector graphics and a heart-pounding techno sound track, with an improved version of the original game-play featuring more variation. It is often considered the best game of Atari Jaguar. There is also a PC version of the game, which many consider to be inferior to the Jaguar version.

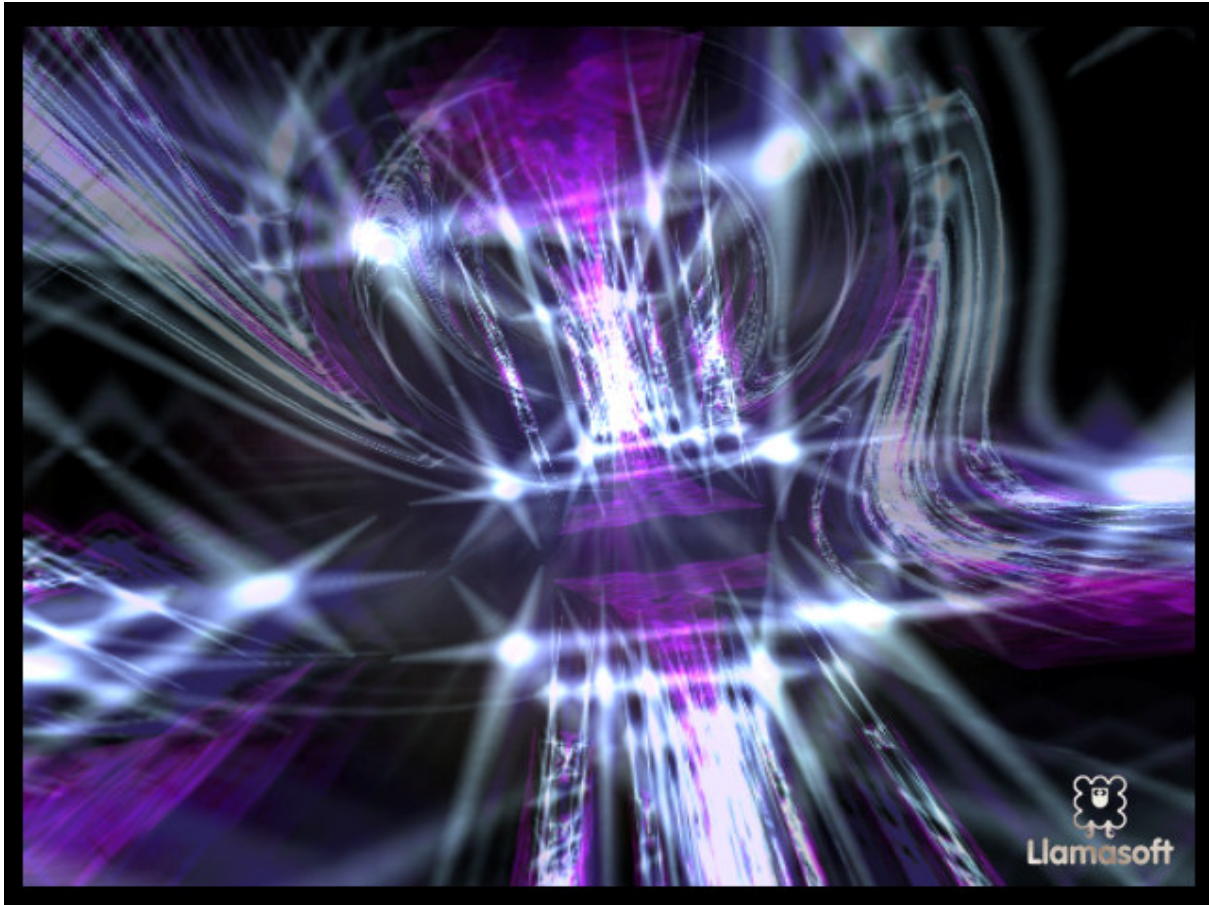


Pictures: Tetris 2000 and Defender 2000

Virtual Light Synthesizers

Minter also created **Virtual Light Machine**, which was a light synth built-into Atari JaguarCD. It generated psychedelic graphics in real-time on a television screen while playing audio CDs on JaguarCD. It was based on his earlier program, **Psychodelia** (Llamasoft 1984). It evolved into **Trip-a-Tron** (Llamasoft 1987) for Atari ST and then into multiple versions of Virtual Light Machine, one version of which was built-into Nuon powered DVD-players.

During 2003-2004 Minter worked on a project called **Unity** for Lionhead Studios. The aim was to make a game in a light synth-alike environment. Apparently the project is cancelled as Minter got such a great offer from Microsoft to make a light-synth for the new Microsoft Xbox 360 game console. The light-synth is built-in to all Xbox 360 consoles and it displays visual effects synchronized to music.



Screenshot from Neon lightsynth.

References

- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition)
Osborne 2004, ISBN: 0-07-223172-6
- Personal discussion and Jeff Minter's presentation in Assembly 2003
- Llamasoft home page
Available at: <http://www.llamasoft.co.uk>, accessed on 3rd August 2004
- Jeff Minter: the history of Llamasoft
Available at: http://www.wayoftherodent.com/guests/bob_yakhistory.htm, accessed on 3rd August 2004
- Fact Index: Jeff/Minter
Available at: http://www.fact-index.com/j/je/jeff_minter.html, accessed on 3rd August 2004
- James Hague: Halcyon days interview of John Harris
Accessed on 13th March 2006, available on
<http://www.dadgum.com/halcyon/BOOK/MINTER.HTM>

- Ryan Edwards: Nuon be Good?
Available at: <http://www.myatari.net/issues/jul2003/nuongood.htm>, accessed on 3rd August 2004
- Malc: Llamatron review (with screenshots)
accessed on 3rd August 2004
Available at: <http://www.classicgaming.com/shmups/reviews/llamatron/llamatron.htm>
- Thomas Bätzler: Llamatron review
, accessed on 3rd August 2004 Available at: <http://www.baetzler.de/amiga/llamatron.html>,
accessed on 3rd August 2004
- Gregory D. George: Llamatron - Old School Gameplay Meets The Yak
Available at: <http://www.ataritimes.com/atari-st/reviews/llamatron.html>, accessed on 3rd August 2004
- Jeff Minter: Llamatron "read me" file
Available at: <http://www.dadgum.com/halcyon/BOOK/MISC/LLAMA.HTM>, accessed on 3rd August 2004
- AGH Jaguar Review: Tempest 2000
Available at: http://www.atarihq.com/reviews/jaguar/tempest_2000.html, accessed on 3rd of August 2004
- Robert A. Jung: Jaguar Review: Tempest 2000
Available at: <http://www.digiserve.com/eescape/atari/jaguar/Tempest-2000.html>, accessed on 3rd August 2004
- Gregory D. George: Tempest 2000
Available at: <http://www.ataritimes.com/jaguar/reviews/t2k.html>, accessed on 3rd August 2004
- Gregory D. George: Defender 2000
Available at: <http://www.ataritimes.com/jaguar/reviews/defender2000.html>, accessed on 3rd August 2004
- Jeff Minter: Gridrunner History
Available at: <http://smokey.blackcatnetworks.co.uk/~llama/Gridrunner/hist.html>, accessed on 3rd August 2004

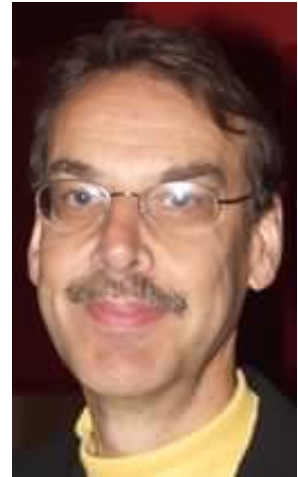
Rob Hubbard (1956-) – the Most Famous Computer Game Musician

Rob Hubbard is the name most people associate with, when they talk or hear Commodore 64 music. He has created dozens of memorable game tunes for that computer and for many other game platforms.

Musician and Self-Taught Programmer

Rob Hubbard was born on 1956 in Kingston upon Hull, England. Hubbard learned to play piano in his childhood. In the late 1970s he became professional studio musician and played in a band, although he has always been a little bit shy in front of an audience.

He learned himself to program in BASIC and assembler for Commodore 64 (C64). He made few demos and wrote education software for learning music. He sent sample of work to Gremlin Graphics in 1985, when being 29 years of age. To his surprise Gremlin Graphics was more interested in the music he had made than the educational software. He was asked to make music for **Thing on a Spring**, a platform game published by Gremlin Graphics in 1985. In that game the player controlled a thing on a spring. Hubbard composed a whimsical theme for the game, which used the SID sound chip of C64 to emulate violins, electric guitar bass and drums.



SID - The Sound Chip of Commodore C64

The 6581/8580 or Sound Interface Device (SID) was designed by Robert Yannes, who founded the Ensoniq synthesizer company, for MOS Technology. It was the most complicated sound chip used in home computers in that era. It featured three audio oscillators with eight octave range. Each of the oscillators could produce any of the following 4 waveforms: saw-tooth, triangle, pulse and noise. Each oscillator also had a volume register and an Attack-Decay-Sustain-Release (ADSR) volume control and a ring modulator. It also had one multi-mode filter, featuring low-pass, high-pass and band-pass, but it was rarely used in C64 games. The three oscillators meant that there could be only a total three sounds playing time, including music and all the sounds effects.

Hubbard's technique of composing music for C64 usually included of squeezing a melodic base drum and snare drum into one oscillator. Another oscillator was used for accompaniment and the last channel was used for melody. Just a normal triad chord would take up all three oscillators. Using a technique called arpeggio, one quickly changed through all the notes of chord in 1/50th of a second (the screen refresh rate in PAL TV system used in Europe), one managed to generate the sound of chord using just one oscillator e.g. C-E-G pattern for C major chord, so called octave arpeggio is also common in Hubbard's songs playing the same note one octave higher every second 1/50th of a second.

The Golden Years of Hubbard 1985-1987

Most of the game music of that era was done by people, who were mainly programmers. It was not unusual that the music of the game was made by its programmer, sometimes borrowing bits and pieces from classical music or traditional songs. Hubbard combined programming talent with classical music training. He had a talent to make catchy melodies, create unique "Hubbard" sound on SID sound chip and that was soon recognized by many fans around the world. Between years 1985-1987, which mostly people consider the golden years of Hubbard, he composed music for about 60 games. The most famous of his game music are (in alphabetical order):

- **ACE II** (Cascade 1987)

- **Action Biker** (Mastertronic 1985)
- **Auf Wiedersehen Monty** (Gremlin Graphics 1987)
- **Battle of Britain** (PSS 1985)
- **Commando** (Elite 1985)
- **Chimera** (Firebird 1986)
- **Confuzion** (Incentive 1985)
- **Crazy Comets** (Martech 1985)
- **Delta** (Thalamus 1987)
- **Flash Gordon** (MAD/Mastertronic 1986)
- **Geoff Capes Strongman Challenge** (Martech 1986)
- **Gerry the Germ** (Firebird 1986)
- **The Human Race** (Mastertronic 1986)
- **International Karate** (System 3 1986)
- **International Karate+** (System 3 1987)
- **Kentilla** (Mastertronic 1986)
- **Knucklebusters** (Melbourne House 1986)
- **The Last V8** (MAD/Mastertronic 1985)
- **Lightforce** (Faster Than Light 1986)
- **The Master of Magic** (Mad/Mastertronic 1985)
- **Mega Apocalypse** (Martech 1987)
- **Monty of the Run** (Gremlin Graphics 1985)
- **One Man & His Droid** (Mastertronic 1985)
- **Phantoms of the Asteroid** (Mastertronic 1986)
- **Rasputin** (Firebird 1985)
- **Samantha Fox Strip Poker** (Martech 1986)
- **Saboteur II** (Durell 1987)
- **Sanxion** (Thalamus 1986)
- **Skate or Die** (Electronics Arts 1987)
- **Spellbound** (MAD/Mastertronic 1986)
- **Star Paws** (Software Projects 1987)
- **Thanatos** (Durell 1987)
- **Thrust** (Firebird 1986)
- **Thundercats** (Elite 1987)
- **Up, Up & Away** (Starcade 1985)
- **Warhawk** (Firebird 1986)
- **W.A.R.** (Martech 1986)
- **Video Poker** (Mastertronic 1986)
- **Wiz** (Melbourne House 1987)
- **Zoids** (Martech 1986)



Hubbard Borrowed Compositions

Some might wonder how he could make music for some many games in just three years of time. Most of the game music of that era consisted of one or few songs for the game, typically the length of 4-5 minutes. But there are exception to this rule Hubbard's main tune for the game Knucklebusters was over 16 minutes long and some of this game soundtracks like contained lot shorts tunes e.g. Auf Wiedersehen Monty, contained 13 tunes, which he made together with Ben Daglish, another famous game musician, with borrowing pieces of classical

music and national anthems and folk music.

Many of the games had a separate a game over music, which was played after the player had lost the game and was entering his initials to high score. The games were often stored in a C cassette and the loading times of some games took well over 20 minutes, to make this long wait more bearable several games also had a separate loader music, which was played while the actual game was loading. Sometimes the loader music became more popular than the actual game tune. The case is especially true in Sanxion, where the actual game music is pretty short tune ripped from Sergey Prokofiev's Romeo and Juliet Ballet, a piece called **The Montagues and Capulets**.

Hubbard took also lots of inspiration from popular synthesizer musicians, particularly **Jean Michel Jarre**, whose music he used in **Zoolook** (sound demo), and. **Synergy** (the main theme of Zoids is the song Ancestors from the Audion album). The first 52 seconds of Delta game tune are from Koyaanisgatsi, the film, composed by Philip Glass. Some of the songs were based on earlier works e.g. One Man in His Droid game music is the same as tune #2 in Final Synth Sample II, which Hubbard made in 1985 to demonstrate his music making for C64.

Making of Commando

Hubbard tells about the extremely fast process of making Commando:

"There is an interesting story behind Commando. I went down to their office and started working on it late at night, and worked on it through the night. I took one listen to the original arcade version and started working on the C64 version. I think they wanted some resemblance to the arcade version, but I just did what I wanted to do. By the time everyone arrived at 8.00am in the morning, I had loaded the main tune on every C64 in the building! I got my cheque and was on a train home by 10.00 am..."

Commando was a vertical scrolling shooter originally made as an arcade game by Capcom 1985. It had some resemblances to the film of the same name, but it wasn't an official movie license game. Hubbard used the main melody of the arcade game for his famous C64 music, but he also made a game over tune, which was in 2002 made into a love song called "We'll never be apart" with English lyrics by N-Joy and DJ Poa of The Soundwavers.



Hubbard's Working Style

About his work methods replied the following in www.c64hq.com interview:

Question: How could a typical composing day look like?

Hubbard: I would start work at 10.00 AM and work till 4 PM. I would then sleep till 5.30 PM. I would then eat and watch the news on TV and start working at 7 PM. I would finish working at 4.00 AM.

Question: How long did that last? I mean, you got to have some free time as well.

Hubbard: It lasted from 1983 to about 1988. I really had very little personal time and holidays.

Question: By working at home, did that give you the peace and quiet you required?

Hubbard: Well, you have to let people know that when it's time to work, you don't want to be disturbed. You get more freedom working at home and you don't have a commute either.

Question: Working this hard must have left you quite unimaginative sometimes. At that point, where did you search for inspiration?

Hubbard: Well this is very true and happens to everyone. Sometimes the pressure of having to get it done really makes you write good stuff. Sometimes of course the ideas dry up. I had 3 ways to work. Sometimes I would write directly with the C64 by poking bytes using a machine code monitor. Sometimes I would write using a pen and paper. Other times I would sit at the keyboard and play until the ideas come out. If everything fails then you can get inspiration from existing music or CD's.

Years at Electronics Arts

In 1989 Hubbard left Newcastle, United Kingdom to work for Electronics Arts in USA. He was the first person at EA completely devoted audio and did everything according to his words: *"Music, programming, SFX, PCs, MIDI, drivers and tools."*

Hubbard was soon promoted to Audio Technological Director. This was a more administrative position. Hubbard was still involved in making game audio, but this also marked the end of his creative period. During his years in EA, he made music and audio for several games including PC version of **Populous** (Bullfrog Productions/EA 1989), **Low Blow** (Synergistic software/EA 1990), **Ski or Die** (Electronics 1989), but none of these had as memorable tunes as his earlier works for C64.

Hubbard's Music Lives On

Hubbard left EA 2002, after having being severely disappointed how games were made nowadays. He felt that marketing and sales department made all the decisions and there was no longer room for creativity. Recently he has been involved in making music for mobile phone games.

Hubbard's music is not forgotten. Already in at the end part of 1980's Jochen Hippel (alias Mad Max of the Exceptions as the demo scene people know him) converted most of his tunes to Atari ST. Most notable of this demos was the **B.I.G. Demo** (The Exceptions 1988), which contained 113 tunes by Rob Hubbard and some color animated effects on the screen plus a very long scrolling text. That was a sort of tribute to Rob Hubbard and it is not the only one.



His C64 music is still popular among game music enthusiasts and he is considered the greatest computer game musician of all time in Western countries, at least in Europe. His famous C64 tunes have been remixed countless of times and played by rock groups, like **Press Play on Tape**. Some of these remakes add lyrics e.g. Mega Apocalypse (N-Joy of the Sound Wavers 1999). In 1997 Chris Abbot published a commercial CD called **Back in Time** containing mostly remakes of old Hubbard C64 tunes. Hubbard took in part of the remake process of some the tracks of this CD. After the first **Back in Time** CD, there has been more than 20 commercial C64 remix/remake albums, many of them featuring music from the maestro himself.

Screenshots from Little Sound Demo and Little Color Demo by The Exceptions (1987) featuring Atari ST conversions of Hubbard's music.

References

- Steven Poole: Trigger Happy: Videogames and the Entertainment Revolution (page 69) Arcade Publishing 2004, ISBN: 1559705981
- Wikipedia entry on Rob Hubbard
Accessed on 5th of March 2006 and available on http://en.wikipedia.org/wiki/Rob_Hubbard
- Wikipedia entry on SID
Accessed on 5th of March 2006 and available on http://en.wikipedia.org/wiki/MOS_Technology_SID
- Mobygames entry of Rob Hubbard
Accessed on 5th of March 2006 and available on <http://www.mobygames.com/developer/sheet/view/developerId,6/>
- Petri Kuittinen's personal conversations of Rob Hubbard in Assembly 2003, August 2003
Assembly TV interview of Rob Hubbard by Petri Kuittinen
- The Complete Works of Rob Hubbard
Accessed on 5th of March 2006 and available on <http://www.freenetpages.co.uk/hp/tworh/index.htm>
- www.c64hq.com: Hubbard Softography (including an interview)
Accessed on 5th of March 2006 and available on http://www.c64hq.com/interviews/hubbard_softography.html
- The Sound Wavers Home Page
Accessed on 15th of November 2005 and available on: <http://www.soundwavers.com>
- C64 Audio - selling C64 remixes
Accessed on 15th of November 2005 and available on: <http://www.c64audio.com/>
- Remix.kwed.org - free C64 remixes for download
Accessed on 5th of March 2006 and available on <http://remix.kwed.org/>
- High Voltage SID Collection (contains all Hubbard's C64 compositions and also information about them in text format)
Accessed on 5th of March 2006 and available on <http://www.hvsc.c64.org/>
- Wikipedia entry on "Atari ST demoscene":
Accessed on 5th of March 2006 and available on http://en.wikipedia.org/wiki/Atari_ST_demos

- Wikipedia entry on "The Exceptions":
Accessed on 5th of March 2006 and available on
http://en.wikipedia.org/wiki/The_Exceptions
- Wikipedia entry on "Jochen Hippel":
Accessed on 5th of March 2006 and available on
http://en.wikipedia.org/wiki/Jochen_Hippel

Chris Stamper (1959-) and Tim Stamper (1962-) – Founders of Ultimate Play the Game and Rare and makers of many famous Spectrum games

The Stamper brothers, Chris and Tim Stamper, founded Ultimate Play the Game to publish and produce many of the most memorable and best-selling Sinclair Spectrum games. Later they founded Rare and turned to make games exclusively for Nintendo.

Early Years



Rare staff posing outside manor farmhouse in 1987. Left to right: Tim Stamper (graphics director), Carole Stamper (secretary), Tim Stamper (graphics director), Rachel (secretary), David (sound), Mark (software head), Paul (software), Steve (graphics), Kevin (graphics).

Chris Stamper was born in 1959 in England, UK and his brother Tim Stamper was born three years later, in 1962. Chris Stamper was graduated with a degree in physics from electronic department of the University of Loughborough. He was working full time and in his free-time learned to program on computers. Chris Stamper built himself an RCA CDP 1802 computer and his original plan was to make program to control traffic lights. Around 1980 Chris Stamper began to work for Zilec, a small British company that made arcade conversions. One of the first of them was Space Invaders.

Tim Stamper studied in Leicester Technical College, but he quit his studies when his older brother Chris suggested him to make their own coin-operated game company. In 1982 in the town of Ashby de la Zouch the Stamper brothers together with their college friend John Lathbury and Carole Ward formed a company called **Ashby Computer and Graphics** (ACG). Carole Ward was back then the girlfriend of Tim Stamper and later became his wife.

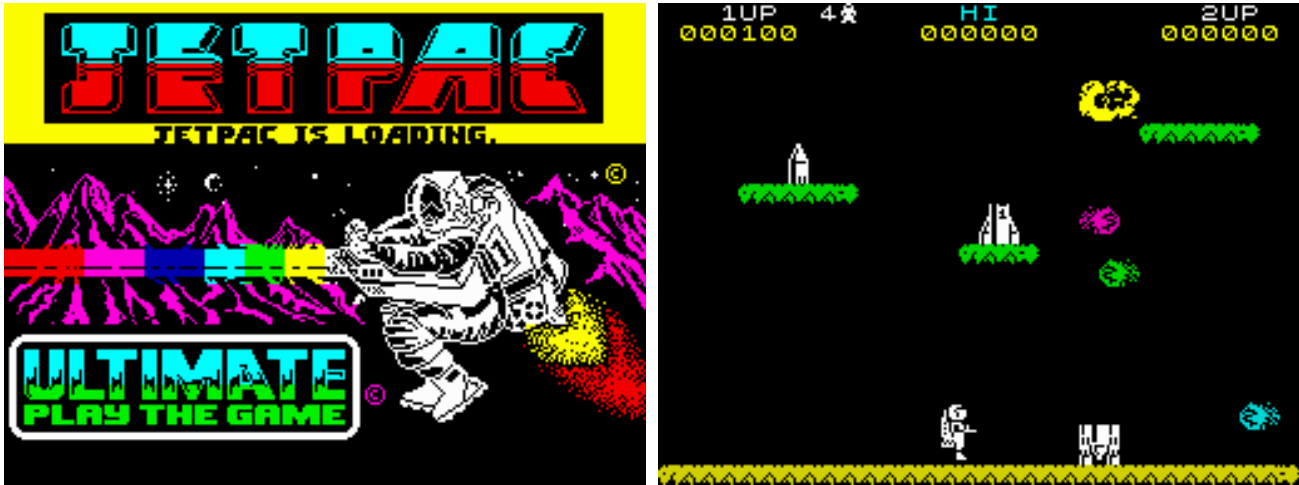
Jetpac

ACG financed its operations by fixing coin-operated games and creating modification kits for them. The company was living on a shoe-string and was in debt, but things were about to change soon. Chris began program a game called **Jetpac**, where a spaceman called Jetman was looking for parts and fuel for his space ship. Tim, the younger brother of Chris, provided colorful, cute graphics for

the game. The game was released in summer 1983 under the label of **Ultimate Play the Game**, a trading name for ACG. The game was released originally for Sinclair ZX Spectrum, a popular 8-bit computer in Europe in 1980s. In the same year the game also ported to Commodore VIC-20. The game sold 300000 copies with the retail price of £5.50, earning £1.8 million for Ultimate. Such was unheard numbers in UK, where there was about 1 million Spectrum computers.

“It was incredible penetration for a single product. We had an advantage – we’d been working on an arcade product. We just took that expertise and transferred it directly to the Sinclair Spectrum.”
- Chris Stamper

The **Jetman** character became so popular that a computer magazine **Crash** began to run a comic strip with the same name. The Jetman character was later featured in Stamper’s **Lunar Jetman** (Ultimate Play the Game 1984).



More Hit Games

Jetpac (Ultimate Play the Game 1983) was quickly followed by **PSSST** (Ultimate Play The Game 1983), **Tranz Am** (Ultimate Play The Game 1983) and **Atic Atac** (Ultimate Play The Game 1983). All these games were released for Sinclair Spectrum and received good reviews and were successes.

In PSSST the player controlled Robbie the robot, whose task was to take care of his plant, which was being attacked by various insects. The name PSSST came from spray-on hair-cleaning product. In Tranz Am the player has to drive around America, collecting 8 trophies and avoid natural hazards and kamikaze cars. In Atic Atac the player the player was trapped in evil haunted castle and had to find the hidden golden key of A.C.G. to escape via the only exit, the main doors. The player was able to control 3 characters: Knight, Surf and Wizard, each with its own special abilities, specific weapons and ability to move through one set of secret passages, not accessible by other characters.

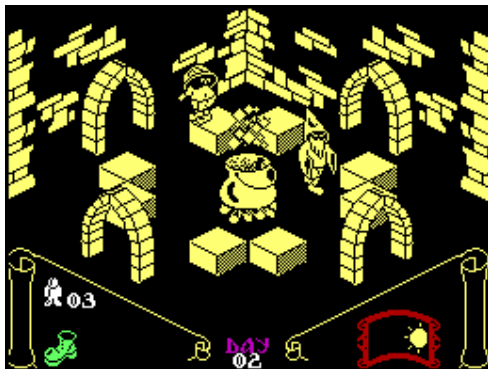
Chris Stamper had uncanny talent for programming, allowing the fairly limited hardware of ZX Spectrum to produce fast fluid graphics and Tim Stamper provided colorful graphics for the games and the game packages. All games created by the Stamper brothers have a distinct style and feel, unique them. Their philosophy to create games is not to think about target groups, but to make unique games, which they themselves find interesting and fun to play.

During years 1983 and 1986 the Stamper brothers made a total of 14 games for Sinclair ZX Spectrum. They are widely considered to be amongst the best games for Spectrum and graphical masterpieces of their time. The gamers associated Ultimate – Play the Game name with quality and

the company soon developed an aura of mystery as its employees refused to give interviews to press.

Early Isometric 3D

In 1983 they had already finished a called **Knight Lore**, using isometric 3D graphics. But they didn't want to release yet, because they were afraid people would no longer want any 2D games after it. Instead they first released **Sabre Wulf** (Ultimate Play the Game 1984). Sabre Wulf featured Sabre Man, an explorer in jungle. Despite having retail price of £9.95, which was twice as much as the normal price (£5.50) of Spectrum games back then, the game ended up selling 350000 copies.



The same Sabre Man was later featured in **Underwulde** (Ultimate Play the Game 1984), a platform jumping game. Knight Lore was released in 1984 and it was their first game to use technique called **Filmation**, an isometric 3D game engine. The first arcade game to use isometric graphics was **Zaxxon** (Sega 1982) and the first published computer game to use isometric 3D graphics was **Ant Attack** (Quicksilver 1983) programmed Sandy White (some sources mention him to be female, but he is in fact a man). In Ant Attack the player controlled either a boy or a girl, who is trying to find his or her lost half, while avoiding the attack of giant ants and moving around obstacles.

The same Filmation technique was later used in games like **Alien 8** (Ultimate Play the Game 1984), **Pentagram** (Ultimate Play the Game 1985) and **Gunfright** (Ultimate Play the Game 1986), a game set in the Wild West. Gunfright was the last Spectrum game made by the Stamper brothers. The quality of the releases from Ultimate began to decline after that, even though in 1987 they still released 2 new games: **Martianoids** (Ultimate Play the Game 1987) and **Bubbler** (Ultimate Play the Game 1987).

Nintendo Entertainment System

In 1985 Ultimate Play the Game/AGC began releasing games for Commodore 64 computer, but the Stamper brothers were not involved in making them. They had already set their mind on a new platform. At the end of year 1983, Joel Hochberg, who later became the CEO of Rare, visited Tokyo and Nintendo Famicom. He saw that it was the future of video gaming, purchased one unit and sent it to Stampers. Chris Stamper spent six months to reverse-engineer the hardware of the Famicom/NES. He made a technical demonstration, which showed what he could do with NES. It convinced Minoru Arakawa, the head of Nintendo of North America (NOA). They managed to make a lucrative deal with Nintendo. Instead of being a separate game publisher, they licensed their games to Nintendo. This allowed them to publish as many games as they wanted, unlike the other publishers, who had to settle with Nintendo allocations, of publishing only couple of games per year..

Birth of Rare

The Stamper brothers understood there was much more money in video games, than in computers, which were hampered by software piracy. In 1985 they set a special-division to create video games called Rare. In 1986 Stampers sold the name Ultimate – Play the Game for US Gold, a major

software publisher, for undisclosed amount of money. In the same year the brothers formed a new company called **Rare, Ltd.** It was based in a farmhouse in Twycross, a small village in England. *"I reverse engineered the NES. I had an understanding of the coin-op hardware that was out there, so I had a very good idea what the Nintendo actually contained. We got about 99 percent correct. There were just a few things we didn't know about. But the interesting thing was the stuff we discovered in the machine that was not documented. That instantly gave us an advantage that other developers didn't have."* – Chris Stamper (from Steve L. Kent's book, like the rest of quotations)

Their first game for Nintendo Entertainment System was **Slalom** (Rare/Nintendo 1986). Rare went to develop and port about 60 games for NES. Most of them are the highest technical quality, including **R.C. Pro-AM** (Rare/Nintendo 1988), **Battletoads** (Rare/Nintendo 1991) to coin-op conversions like **Marble Madness** (Milton Bradley 1989). R.C. Pro-AM was the first NES to use split-screen technique in 2-player mode, a technique developed by Chris Stamper. Battletoads was popular platform game, which got a sequel called **Battletoads & Double Dragon. The Ultimate Team** (Rare 1993).

Razz - A Failed Arcade Experiment

But some of the experiments at Rare didn't go so well: Rare developed an arcade hardware platform, called **Razz**, based on Z80 processor, the same processor that had powered Sinclair ZX Spectrum. They had five teams making games for the new hardware platform, but it was never seen in arcades. They only built one prototype unit, which used a sound chip from Yamaha. To cover the losses from the project they sold the graphics hardware to other arcade game makers.



The Stamper brothers - Chris (left) and Tim (right)

Graphics Too Good to Believe That They Are True

Next they experimented making pre-rendered 3D graphics using state-of-art Silicon Graphics workstations. When Genyo Takeda, leader of Nintendo R&D, came to visit Rare, they showed him pre-rendered boxers hitting each other. Takeda had himself directed a boxing game, called **Mike Tyson's Punch-Out!!** (Nintendo 1987) - one of the best-selling games for NES.

"We had a visit from Mr. Takeda. We decided to show him a demonstration of boxing game we had created, using rendered graphics on a Silicon Graphics workstation. He was very impressed and asked: "What would this look like on a Super NES?" So into the evening and the next day, we had two of our engineers work on taking the 24-bit true color imagery and converting it to Super NES."
- Chris Stamper

"When we took the guys from Nintendo to the art department and showed them what we had, they kept looking under the table. I asked what they were doing. They said there were looking for the big computer, because they didn't understand that everything was being done in the small box"
-Tim Stamper

The Nintendo people could not believe their eyes. The graphics, which they were seeing on SNES screen looked so good, that they thought the Rare developers had cheated them and had a big computer running the actual real-time graphics.



Rare used the same technique in the game **Donkey Kong Country** (Rare/Nintendo 1994). The game was directed by Chris Stamper and Tim Stamper took part in the technical making of the game. It was Chris Stamper's last game. He is now working as a creative director of Rare. Donkey Kong Country game had so stunning visuals that the first people, who saw demonstrations, thought it would be running on the hardware of Nintendo's next game console, Nintendo 64. Donkey Kong Country became the biggest hit Christmas season of 1994, selling over 8 million copies. The game spawned several best-selling sequels and it has been later ported to other platforms.

The enormous success Donkey Kong Country made Nintendo to invest on Rare, first buying 25% of its stock, and later increasing its ownership on Rare to 49%. Rare grew from about 50 people to a company of about 2 hundred workers.

Nintendo 64 Games

Next Rare went to develop games using the hardware of Nintendo 64. They made an arcade fighting game called **Killer Instinct** (Rare/Midway 1994), using hardware, which was called Ultra 64, similar to the up-coming home video game console Nintendo 64. Killer Instinct featured pre-rendered graphics and animated backgrounds with snowflakes flying in the wind. In 1996 the game was published for Nintendo 64.



GoldenEye 007

A Rare team, headed by Martin Hollis, developed **GoldenEye 007** (Rare 1997), a ground-breaking first-person shooter for N64. Almost all the first-person shooters before GoldenEye were simple "kill everything that moves and rush forward collecting weapons and power-ups". GoldenEye introduced complex objective-based missions, actions requiring stealth and usage of various espionage devices in addition to over 20 weapons featured in the game. Most people remember GoldenEye from its excellent multi-player game. It allowed up to four players using split-screen. The multi-player game modes, included:

- Normal (which was the same as Doom deathmatch)
- You Only Live Twice (same as normal, but everybody has only 2 lives)
- The Living Daylights (the player, who holds the flag the longest time wins)
- The Man with The Golden Gun (the game level features one golden gun, whose single bullet kills another player no matter where it hits)
- License to Kill (all attacks, including hand slap, kill with one hit)



GoldenEye is the best-selling game of its genre, having sold slightly over 8 million copies. The PC game **Half-Life** (Valve/Sierra 1998) has sold similar amount, but the unit of price GoldenEye is much higher (most Half-Life copies have probably been sold for highly reduced price).

Other N64 Games

Rare went to develop many other great games for N64, including:

- **Diddy Kong Racing** (Rare 1997), a 3D kart racing game, similar to MarioKart 64
- **Banjo-Kazooie** (Rare 1998), a 3D platform game in the style of Super Mario 64, featuring cute graphics and great audio and visuals.
- **Jet Force Gemini** (Rare 1999), a third-person 3D action game

- **Donkey Kong 64** (Rare 1999), a 3D platform game
- **Perfect Dark** (Rare 2000), the sequel to GoldenEye 007. In my opinion the best game of its genre. The game had more versatile multi-player modes with computer controlled opponents, called simulants, more weapons, better graphics, but it ended up selling much less than GoldenEye, probably due to the fact it didn't have Bond license
- **Conker's Bad Fur Day** (Rare 2001), platform and action game featuring cute-looking squirrel named Conker. The game was full of lewd adult humor and references to famous feature films like Clockwork Orange, The Matrix, Aliens, Saving Private Ryan, Bram Stoker's Dracula and Reservoir Dogs. The game had amazing animated film alike real-time visuals and award-winning sound track



Screenshots from Conker's bad Fur Day

Decline of Rare

Near year 2000 the output of Rare started to decline. Martin Hollis, the main designer of GoldenEye, left Rare in 2000 to form **Zoonami**. David Doak and Steve Ellis, who had been part of making GoldenEye and Perfect Dark, also left Rare to found a company called **Free Radical Studios**. Free Radical Studios is most famous of their **Time Splitters** series of first-person shooters, very similar to GoldenEye and Perfect Dark.

Despite having cranky humor and awesome audio-visuals Conker's Bad Fur Day was not a big seller and it was the only game published by Rare in year 2001 in addition to **Mickey's Speedway USA** (Rare 2001) for Game Boy Color. In year 2001 Rare was still responsible of creating 10% of all the game sales of Nintendo. In year 2002 Rare managed to publish only one game, Star Fox Adventures for Nintendo GameCube. In 2002 Nintendo decided to get rid of Rare and as big shock to almost everyone, Rare was sold to Microsoft for \$377 million.

During Microsoft's reign Rare has been able to churn out more than 1 game a year, but none of them have been great success as during the golden years of Rare.

References

- Grönholm, Tuukka: Rare ennen ja nyt
Pelit 2/2006 magazine, pages 34-36. ISSN: 1235-1199
- Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games
(2nd Edition) (pages 353-354)
Osborne 2004, ISBN: 0-07-223172-6

- Leonard Herman: Phoenix – The Fall & Rise of Videogames (3rd edition) (page 191 and 231)
Rolenta Press 2001, ISBN: 0-9643848-5-X
- Steve L. Kent: The Ultimate History of Video Games (pages 290-292, 442, 491-493)
Prima Publishing 2001, ISBN: 0-7615-3643-4
- Rare Autobiography (Pre- and Post-Microsoft)
Accessed on 7th March 2006, available on
<http://www.rarenet.com/wiki/index.php?title=History>
- Will Brooker: The Many Lives of The Jetman: A Case Study in Computer Game Analysis
Accessed on 7th March 2006, available on
<http://www.cult-media.com/issue2/Abrook.htm>
- Ultimate Play the Game
Accessed on 7th March 2006, available on
<http://www.angelfire.com/retro/carcass/ultimate/biog.htm>
- All Game Guide entry on Chris Stamper
Accessed on 7th March 2006, available on
<http://www.allgame.com/cg/agg.dll?p=agg&SQL=FIBIIII3722>
- Rare - Official Website (featuring a list of all games published by Ultimate Play the Game as Well)
Accessed on 7th March 2006, available on
<http://www.rareware.com/>
- Anthony Eaton: The History of Rareware
Accessed on 7th March 2006, available on
<http://www.raeshooters.com/?page=editorials&article=5>
- Raretopia: A History Lesson
Accessed on 17th March 2006, available on
<http://www.raretopia.com/features/ahistorylesson/index.html>
- A Rare Interview (the first interview Stamper brothers have ever given)
Accessed on 17th March 2006, available on
http://www.solvalou.com/speccy_ultimate2.php
- Adam Doree: The Rareware Interview
For Kikizo games, 17th February 2003
Accessed on 17th March 2006, available on
http://games.kikizo.com/features/rareware_int.asp
- Martin Hollis: The Making of GoldenEye 007
Presented at the 2004 European Developer's Forum 2004-09-02
Web version accessed on 7th March 2006, available on
<http://www.zoonami.com/briefing/2004-09-02.php>
- Wikipedia entry on GoldenEye 007 game
Accessed on 7th March 2006, available on
http://en.wikipedia.org/wiki/Goldeneye_007
- Game Cubicle News: Microsoft Acquires Rare
Accessed on 7th March 2006, available on
http://www.gamecubicle.com/news-nintendo_rare_microsoft_official.htm

Summary and My Observations

The appendix A contains a summary table of the very important game people.

The following text is my observations and thoughts about the very important game people:

- What makes a game or game machine into a hit?
- And what are the common denominators among important game people?

They are not a scientific study of the matter. However I want to publish my opinions here linked with the observations.

Half Have University Education

Fifteen out of 30 people have at least a lower university degree. With five people we don't have accurate information of their education level. I think it is safe to assume that high level of education at least doesn't impair making great games, but it is not a requirement to become a great game maker.

All the very important game people of this chapter have been self-taught in the field game making, with the possible exception of Satoshi Tajiri, who had the privilege being mentored by Shigeru Miyamoto.

Even though most of the workers in game industry are under 35 years of age, the typical age being 20-30 years, all of the people here are at least 35 years of old, the youngest of them being John Carmack. Despite their high age most of them are still active in making games.

None of the great game makers have formal education in making games. There has been some sort of game making education available for at least 10 years. But the number of the people, who work in game industry and who have done any game related courses, is very small. We should also ask the questions: perhaps there is something wrong with the current game education? Maybe it is too theoretical and leads more to academic research and not educating people how to make great games?

Programmer-Designer

Programmer-designer combination seems to be very common and all the great Western game designers fall into this category: Dan Buntin, Chris Crawford, Eugene Jarvis, Ed Logg, Sid Meier, Jeff Minter, Peter Molyneux, John Romero, Richard Garriott, and Will Wright. I have personally done programming and design for games and I can also advice that it is useful for any game designer to study and do programming.

Programming requires mathematical-logical thinking and many great designers have engineering background and sort of engineering mind set. Shigeru Miyamoto has as degree in industrial design and Will Wright studied architecture. Both are certainly useful in designing games, where it is good to be able to design new virtual worlds. I think the best combination would be the combine both mind sets in a single person: mathematical "programmer" mind with artistic eye for beauty and aesthetics, consistent unique-looking audio-visual design.

Males Dominate

Another important notice is that all important game people are men, except for Roberta Williams and Danielle Buntin, who was originally born as a man, but later changed his sex to a woman. This is not due my personal selection nor do I confess to have any prejudice against women. Most of the people working for game industry are men. Women are most often found in game testing or game

art positions, which rarely make them big celebrities in game industry. About 60% of gamers are still men and many people predict this will remain to be so until more women start to make games. But on the other hand women and men view TV and films about equal amount and most films and TV series are directed and written by men. Even though there is lots of famous female artists, almost all hit songs are composed by men, still women listen to music about as much as men.

American and Japanese Dominance

The list contains 8 Japanese and 16 Americans only 6 Europeans, counting Alexey Pajitnov as European. I could have of course included more European game people like Michel Ancel (designer of Rayman and Beyond Good & Evil), but similarly I could have included more Japanese and American game people like Hideo Kojima (designer of Metal Gear Solid), Hiroshi Yamauchi (former president of Nintendo), Kelton Finn (designer of Air Warrior and many other early online games), Tim Sweeney (founder and CEO of EPIC Megagames and main programmer of Unreal), Tim Schafer (designer of Grim Fandango and Psychonauts), Jordan Mechner (creator of Prince of Persia), Steve Meretzky (creator of many famous Infocom text adventure games) and so on.

Europe has more people than USA and Japan combined and certainly many Europeans are very enthusiastic about games. What are the reasons why there are less hit games and important game people coming from Europe?

Perhaps answer lies in the culture and overall way entertainment produced. European film hasn't been successful in cinemas in recent years except for few occasional hits like **Bridget Jones' Diary**. At the same films produced in Far East, especially in China, have been popular world-wide e.g. **Hero** and **Hidden Dragon, Crouching Tiger**. I think one of the big problems is that Europeans are too obsessed with the technical side of games. I personally know many Finnish game developers and all of them are technically very competent, many of them are the top of their field. Many European game programmers, musicians, graphics artists and designers have some sort of background in demo scene. Computer demos are sort of non-interactive audio visual demonstrations. Demos are usually made for normal home computers, but there has been some demos made for mobile phones, PDAs and home video consoles and hand-held game machines. Although the demo makers themselves often like to consider their work as art, it is more often just a technical demonstration "hey, I can also do this". The people who make demos and are interested in demos are called the demo scene. The demo scene has its strongest support in Scandinavian countries, but also other European countries. Americans and Japanese have never been active in making demos, except for few rare individuals. Although demo competitions offer prizes demos are made for non-profit. Making demos and games require the same set skills, but in order to make a good game, the game needs to have good game-play, interactivity and usually also some story and interactivity. The demo-makers have been notoriously bad in the last two. Most demos have no plot, story, just effects followed by each other, sometimes synchronized with music. There used be interactive demos, most of them were made for Atari ST. Most of the talented ST demo scene members have later more or less worked with games, including the writer himself. Some of ex-ST demo scene makers e.g. were able to produce hit games. In October a group of Atari ST demo makers formed Thalion Software to make demos for Atari ST and Commodore Amiga. They made about 15 games and many of them are considered to be technically the highest quality for these machines, but the game sales remained quite poor, as these computer platforms were already fading away – or perhaps the fact the fact the games didn't offer much new in terms of game-play. Thalion went bankrupt.

Winning Game Designs

Most of the best-selling games of all time are actually pretty simple in levels of game-play. The list is topped with Super Mario Bros., Tetris and Super Mario Bros. 3. Tetris is about *connecting* different shaped blocks to form a continuous horizontal line. Super Mario Bros games are mostly about *reaching* a destination, the end of the level to advance further in the game. Pokémon, which is the 2nd best-selling game series of all time, is about *collecting* and *trading* new monsters. It can be argued that most best-selling games are about one verb, one type of main action.

A counter example of this theory is Grand Theft Auto 3 (GTA3) and its sequels for PlayStation 2. GTA3 includes many kinds of game-play, from driving, to beating people, running illegal businesses. Despite being the best-selling game for PS2, its sales pale with the sales of the TOP3 games, which are all simple.

The simplicity has many good points. Simple games are usually easy to understand and easy to get into. Most people are so called casual gamers, they can't afford to spend most of their free-time to learn to play complicated games.

Recognizable Characters

Mario, Pac-Man, Sonic and Pikachu are the most recognized game characters of all time. None of them has much any real historical background or detailed personality. But they all have very distinct, caricature- or cartoon-alike appearance, which is very easy to recognize and remember. Like Sid Meier said the game players want to be the heroes themselves, they want to make the stories inside their heads. Simple characters, which have wide universal appeal and recognizable looks are perhaps better suited for games than more full-fledged and complex personalities with less distinct-looks.

Idea vs. Visuals

Dan Bunten and Chris Crawford both had great ideas, but none of their games was a huge seller. The problem with their games is the lack of good audio-visuals. While playing the best-selling games of all-time I have found that they don't need to have the best game-play of their genre. Great audio visuals compared with decent or good game-play can sell well, or even extra-ordinarily well. One might argue that Tetris doesn't have great visuals, but the best-selling Nintendo Game Boy version of Tetris actually looks aesthetically very nice and it had 3 catchy melodies as background tune.

Making Sequels

Many of the biggest successes in the history of games are sequels or series of games. In almost all the Mario games, the male hero, Mario, has to rescue the Princess Toadstool (also called Princess Peach) and the main villain is Bowser. In almost all the Zelda games the male hero, Link, has to rescue Princess Zelda from the clutches of Ganon, the main protagonist. Almost all Final Fantasy games are about saving the world. The same basic formula repeats itself over and over again. Many customers want *"more of the same"*, like my colleague Lasse Seppänen said.

I have read thousands of reviews of games. I have omitted most of them in this text, in order not to litter the already long text. The general message is:

- The successful sequels haven't differed too much from the previous popular parts of the series. Having too different game-play clearly irritates most of the fans.
- The sequel must not be a total repetition of the older one as well. There has to be something new, at least updated graphics.

Working Style

Dave Morris and Andrew Rollings recommend regular working hours and dress code for game companies in their book *Game Architecture and Design* (pages 187-194). This is in striking contrast with stories of the very important game people, who describe working long hours, often longer than 12-14 hour stretches. Several of famous game people are even known to appear in public in less than format outfit. Personally I don't think clothing affects the person's ability to create good games.

Personality of a Game Developer

The most common nominators in great game designers' personalities are of course real love towards game, perfectionism and persistence. Even some of the great names have needed to fight many years to get their ideas published: Baer's first proposal of interactive games on TV screen was rejected and nobody wanted Wright's Sims at start. Many of the great names in game making are famous of polishing their games for perfection, even when it means that the publication date of the game is pushed one or two years into future.

Asperger Syndrome Alike Personalities

Many great game designers seem to possess features similar to Asperger Syndrome (AS). Satoshi Tajiri is diagnosed to have it. Asperger Syndrome is a milder variant of Autistic Disorder. AS people are usually limited in their capability of non-verbal communication and social interaction, taking things literally and often behaving in way, which might be interpreted as cold or improper for their age or the situation. They usually have 1-2 areas of interest, which is almost like an obsession to them, spending enormous amount of time with this favorite subject and of course often becoming very good at it and knowing a lot about it. The subject of the interest of an AS person might change with life, but the intensity remains the same. AS people usually have very good memory, many of them have eidetic memory and they are more likely to have high intelligence quotient (IQ) than general population. AS people are less subject to peer pressure, they like to do things their own way, not caring what others do. That is very useful feature for great game designer, who needs to have courage to try out new ideas and invent something new. AS persons are often eccentric. Some people with AS talk very little and some are notorious blabbermouths, continuing to talk even when the other person is no longer wanting to listen to their long explanation – for Asperger person there is no midway between these two extremes. I, myself, probably also have mild Asperger syndrome and I clearly fit into talk-too much category. But having AS is no guarantee that a person will be a great game designer.

References

- Morris, Dave & Rollings, Andrew: *Game Architecture and Design* (pages 187-193) Coriolis Group 2000, ISBN: 1-57610-425-7
- Christopher Gillberg: *Nörtti, Nero vai Normaali* (Aspergerin oireyhtymä lapsilla, nuorilla ja aikuisilla) Gummerrus 1999, ISBN: 951-796-178-2
- All Time Top 20 Best Selling Games and More
Accessed on 7th March 2006, available on <http://www.ownt.com/qtakes/2003/gamestats/gamestats.shtml>
- Barb Kirby: *Online Asperger Syndrome Information & Support*
Accessed on 7th March 2006, available on <http://www.udel.edu/bkirby/asperger/>
- What is Asperger's Disorder
Accessed on 7th March 2006, available on

My Observations

- <http://www.aspergers.com/aspclin.htm>
- Wikipedia entry on Thalion Software
Accessed on 7th March 2006, available on
http://en.wikipedia.org/wiki/Thalion_Software
- Wikipedia entry "List of best selling computer and video games"
Accessed on 19th March 2006, available on
http://en.wikipedia.org/wiki/List_of_best_selling_video_games
- Game State Magazine: All Time Top 20 Best Selling Games and More
Accessed on 19th March 2006, available on
<http://www.ownt.com/qtakes/2003/gamestats/gamestats.shtm>

Conclusions

This thesis is not a typical scientific work, where there is one research question and an attempt to answer it. My goal was to write as good history of computer and video games as possible. Thus the conclusions chapter is a short self-evaluation of how well I think I have succeeded in this.

Biographies

Some of the biographies start to look good and are entertaining text to read, which was my original goal. This is especially true in those cases, when I have managed to contact the person concerned. I have written this text over several years and the change in my writing style is obvious in some of the bios. The earlier biographies are shorter, dry and much less detailed, with the exception Jeff Minter, which is pretty long, because of my long rant about Llamatron. I am not happy with my text on Nolan Bushnell and Ralph E. Baer, Shigeru Miyamoto, Toru Iwatani and most of the other Japanese game people. They are too short only barely mention many of the important games, leave out so many details and really they don't give credit to these great people.

Before writing this thesis I didn't like majority of the games made by these game people. I still don't actually like these games, but my respect towards these people has grown greatly. I understand why they have made their choices they did much better and I think my overall understanding towards the game industry has increased. I hope most of this wisdom is distilled in this text and that an interested reader can learn almost as much as I did.

I didn't select the people, because they would have been my personal favorites. The only person in this list, which is truly my favorite, is Rob Hubbard. His music has meant so much in my life. In fact I typed half of the text of my thesis while listening to remixes of C-64 music and the original versions.

Some people might criticize the enormous amount of quotes and borrowed text in my thesis. I wanted to include it all, because I feel it really contains the most important lessons of the game design and industry. It is easy to spot the quoted text, because it appears in italic. Nevertheless I wrote about 100 pages of original text for the thesis.

Factual Correctness

I have worked hard to verify the correctness of the information, but it is certain that my thesis contains some factual mistakes. The mistakes found may fall into 3 categories:

- mistakes in the sources of information I used (see my criticism towards them in the introduction chapter)
- my own mistakes e.g. I misspell a name
- my interpretation of the source text is wrong or my text is written in such a way it is easy to misunderstand it

I am fairly confident, however, that most of this text is factually correct. Most of the people, who have verified their biographies, have pointed out only few small mistakes in the text. The important facts seem to be correct. Most of the mistakes probably lie in the small details.

Usefulness as a Reference

The text could be better organized and it certainly needs a better index. It would function better as a web site, which would allow the use of a search engine and cross-linking. I have used several hundred sources in my work and I think the reference lists of my work should be valuable to any

future researcher of this subject. A careful reader might wonder why the web references in my thesis often have same access date. This is because during the final stage of my thesis writing I re-checked the links to see if there were still alive. Web links often change address and I wanted to guarantee the reader would get as fresh links as possible.

Missing Parts

Due to lack of time the history of different electronic game platforms (video game machines, computers and hand-held video game) machines was omitted. It is a real pity, because I had formed my own "rules of success", based on my observations as to what is needed to launch a successful new game platform. I have just included the tables containing the most important information of popular game platforms.

The chronological history of games was left out for same reason. Instead I just present a timeline. I really regret that it is so.

As mentioned in the introduction chapter, I intentionally left out a chapter about classification of games and an unfinished chapter about the history of major game genres.

Future Plans

My original idea was to publish this text as a large website with lots of pictures, links to video clips and audio and further information. My tiny history of arcade and home video games at <http://users.tkk.fi/~eye/videogames/> has gathered over ten thousand hits per month for many years already, sometimes up to around 100 000 hits per month. I made it originally in October-December 1997 for one school seminar. I would never have guessed that the history, which basically consists of 4 web pages, would be so popular. I have seen my text quoted in many sources and other people's work. Certainly a much more comprehensive and better-made history of computer game and video games would gather many more hits, probably over a million hits per month. This is already more than enough to make a profitable web site by accepting some advertisements to the web site.

Unfortunately I lost the web domain name, which I had registered for this usage. I forgot to renew the domain registration and my domain got 'stolen'. Later, I lost a valuable amount of time when liquid spilled into the keyboard of my laptop and it got totally broken. My thesis and all the materials were stored inside the laptop. Luckily I managed to restore the data from backups, so I basically lost just web browser bookmarks.

I still plan to make the website and implement it using HTML4.01 and CSS to achieve maximum compatibility with different web browsers and highest possible usability. It is possible to define different CSS settings for different media e.g. it is possible to make a web page so that different parts and style settings are used for print and screen media. I plan to use it so that, for example, the links are underlined text on the computer screen. But when you print the computer screen you see the address of the link in square brackets after the link like this; All Game Guide [http://allgame.com]. Navigation bar etc. will be dropped out for print media. In this way the web site could be printed on paper and look almost like a document made for print media. And there is no need for a separate and clumsy "print this page" link. Just press the "print" button and my web page will print correctly.

Several fellow students have also suggested to me to make a TV series or book of this subject. I don't know any people in TV production, but both ideas sound feasible. For example, there could be a TV series of the chronological history of electronic games or then small special inserts or features

Conclusions

in some game related TV program could be produced e.g. about some classic game or important game person.

This thesis already serves as book if you print the Acrobat (PDF) version on paper. I plan to update the text when I have time in an attempt to keep it up-to-date. So this can be considered version 1.00 of the document. The missing chapters will be there someday, finally someday making it the most comprehensive history of computer and video games.

Have fun gaming!



Guild Wars - one the reasons, why it took me so long time to finish this thesis.

Glossary

1st person = the point of view as seen through the eyes of the avatar e.g. 1st person driving game where player sees the street through the windshield of the car, as if he would actually be driving the car

2D = 2-dimension/dimensional

3D = 3-dimension/dimensional

3rd person = the point of view of the game, where the player can see his avatar, player character, from outside.

AC =Armor Class

Action Games = A major category of games, which put emphasis on fast reflexes and good hand-to-eye coordination. Action games are often divided into game levels and involve traveling around, collecting various items, power-ups and defeating opponents in fast-paced real-time battles.

Adventure = A genre of games, where the player controls a character, which usually needs to solve problems using some non-violent ways as well.

AI = Artificial Intelligence

Arcade = Video arcade or amusement arcade is a place where people play arcade games. Arcades usually also have pinball and other electronics games.

Arcade Game = A game found in arcade environment. Almost all arcade games are coin-operated, so these terms are often used as synonyms. In its broader meaning arcade game can mean any game, which is a conversion/port of some arcade game or a game, which has game-play similar to arcade games.

Armor class = A numerical statistic, which describes how difficult it is to hit character in combat

Artificial Intelligence = Part of game logic, which is responsible of making decisions for computer controlled opponents and characters.

Avatar = the game representation of the character the player is controlling, essentially the character the player is playing e.g. Mario in Super Mario Bros. (Nintendo 1985)

Bot = Short for Robot, a computer controlled character, which replaces the role normally played by a human player. Bots are sometimes also referred as AIs, as they use AI for their operation.

Boss (Monster) = an enemy in the game, not necessary a monster, which is more difficult to defeat than most other opponents in the game. Boss monsters are usually found at the end of game levels.

Character class = a system used in role-playing games to classify game characters by profession. Typical RPG character classes are fighter/warrior, magic/user/wizard, thief/rogue and so on. Each character class usually has some special abilities, disadvantages, limitations and bonuses related to that character class only.

C64 = Commodore C64, a popular home computer of the 1980s

Coin-operated game = A game, which requires player to insert tokens or money to play the game. Usually one token or unit of money allows the player to play 1 game for a limited amount of time. Playing the game really well usually allows the player to extend this time. Most coin-operated games are arcade games.

CPRPG = Computer Role-Playing Game

Cut-scene = non-interactive portion of a game, usually implemented using full-motion video or pre-rendered 3D graphics

DC = Sega Dreamcast, a home video game system

Appendix A: Summary Table of Very Important Game People

Death Match = A multi-player mode popular in first-person shooter games, where the goal of each player is to eliminate as many opponents as possible. The name death match was first used in Doom (iD Software 1993)

D & D = Dungeons & Dragons

DM = Dungeon Master or Death Match

Driving Game = A game about driving some vehicle, usually a car. The main goal in driving games is usually to reach a destination as fast as possible.

DS = Nintendo DS, a handheld game system

Dungeon Master = A game master in Dungeons & Dragons

Dungeons & Dragons = the first and the most popular table-top role-playing game.

Emulator = an emulator is a program, which enables the running of computer programs on a different platform than that which they were originally meant to be used on.

EXP = Experience Points

Experience Points = A system used in most role-playing games to treat character advancement. The player usually needs certain amount of experience points to advance to the next character level, where he attains new abilities, better skills, more hit points.

Fighting Game = A game where the main goal is to defeat an opponent usually using martial arts or melee weapons. Fighting games are often modeled after real martial arts or duels and divided into matches and rounds.

FPS = First-Person Shooter – a 3D shooter game, where the player sees the action as through the eyes of his avatar. FPS can also mean Frames Per Second, a measurement of how many screens the game can update on screen per second. The higher FPS, the smoother the animation (not-counting the absence or presence of motion-blur)

Freeware = A computer program, which is made available for free.

Gambling = Game, where the players bet with money or some other valuable items and has a chance to actually win or lose that money or item.

Game = In a strict sense, games are challenges or conflicts with multiple participants, who are allowed to attack each other. Games have rules and varying outcomes, endings, where one or several parties win and one or several lose, or there is a draw.

In normal speech games can mean any sort of entertainment product, which are marketed as games or share similarities with games e.g. similar controls, structure and characters.

Game Design = The process of designing content, background and rules of a game.

Game designers, who specialize in making new game levels, are called level designers.

Game Designer = A person, who practices game design

Game Engine = the core code of the game, which handles the basic functionality of the game, but doesn't include game-specific functionality. The same game engine can be used to implement several games, sometimes very different type of games, but usually a game engine limits a game to one genre.

Game Level = A basic element of game division – a chapter of game, where the player has a specific goal and often the game level has a boss monster at the end. The Game level can also be one level of a dungeon or one map.

Game Master = In table-top role-playing games each player usually controls just one game character and the game master is responsible for controlling all the other creatures and events. A game master makes the rules and designs the adventures.

Game Mechanic = A specific way in which game-play is implemented e.g. how to perform a jump in a game.

Appendix A: Summary Table of Very Important Game People

Gameplay = distinguishes games from other mediums. In the broad sense gameplay is the overall experience which the player experiences when playing the game. In the narrow sense game-play refers to the game mechanics, the game-play, the game characters and the actual goal of the game, not including the audiovisual representation of the game.

Game Programmer = A person, who performs programming for games.

Game World = The space where the game takes place.

GB = Nintendo Gameboy, a handheld game system

GBA = Nintendo Gameboy Advance, a handheld game system

Genre = A genre is a particular type of game, which people consider as a class, because it has special characteristics

GM = Game Master

Graphical User Interface = The user-interface of a program, which is graphical in nature.

GUI = Graphical User Interface

Hit Points = A numerical statistic, which tells how much health a character has left.

When HP drops to 0, the character usually dies

Home Video Game = See home video console

Home Video Console = A device, which is specifically designed to play games, usually connected to a television.

HP = Hit Points

Interactive = process where there is interaction (input and output) between two systems e.g. an interactive computer program where the output is dependent on user input. Games are interactive by definition, but they still often contain non-interactive parts called cut-scenes.

Interactive movie = a collection of branching video clips, where the user can make selections, which dictate which video clips are to be shown next

Isometric 3D = see isometric projection

Isometric projection = an orthographic projection where the angles between projecting x, y and z are all 120 degrees. For objects that are parallel to each other these are usually depicted at an angle of between 35 to 45 degrees. Zaxxon (Sega 1982) was the first game to use isometric projection. Isometric projection is also sometimes called a pseudo 3D-game, because it rarely allows rotation of image except in 90 degree increments.

Linear = linear means that there is only one path, one possible choice of actions to get from A to B. Linear fiction is non-interactive. Linear forms of fiction include books, feature films and classical and most popular music.

MMO = Massively Multi-player Online

MMORPG = Massively Multi-player Online Role-playing Game

Mod = short for "modification" – a user-created modification or addition to an existing game. They are often done using the mod tools or level design tools of the specific game

Money game = game, where the player places bets to play the game and can actually win some money or other valuable items e.g. fruit machine, video poker

MUD = Multi-User Dungeon, an early text-based massively-multiplayer computer role-playing game.

Multi-Player = A game having more than 1 player. Games, which allow very large number of simultaneous players e.g. hundreds or thousands players, are usually called massively multi-player games.

N64 = Nintendo 64, a home video game system.

Appendix A: Summary Table of Very Important Game People

NES = Nintendo Entertainment System, a home video game console

Non-interactive = the opposite of interactive e.g. most movies, music and printed books

Non-linear = Opposite of linear. The player is given meaningful choices, possibilities and several different outcomes from the same situation.

NPC = Non-Player Character

Open Source = a philosophy, which believes the source code for computer programs should be made available for free, shared with the view to further development and peer review. Open Source programs are often freeware as well.

PC = Player Character or Personal Computer

Platform = A different architecture, device or operating system, where the program is designed to run on e.g. a specific video game system

Platform Game = A sub-category of action games, where the main task of the player is to advance to a certain location and collect items, usually trying to avoid computer controlled enemies. The player's movement methods often include performing high acrobatic jumps. Platform games are usually divided into several game levels with boss monsters at the end.

PS = Sony PlayStation, a home video game console system

PS2 = Sony PlayStation 2, a home video game console system

Pre-rendered = Graphics, video or audio, which is calculated and/or drawn or rendered in advance, instead of producing it in real-time.

Puzzle = a problem, usually made for recreational purposes. Common categories of the traditional puzzle are crosswords, mazes, mathematical puzzles and logic puzzles, but there also purely computer based puzzles like Tetris. Almost every game contains some sort of puzzle.

Racing Game = See driving game. Racing games can also be considered a sub-category of driving games, where the driving is limited to pre-defined races (no free-form driving).

Real-Time = The game actions are decided in real-time, on-the-fly as the player inputs his/her commands. Real-time games often require fast reflexes, as opposed to turn-based games where the player can think his next move indefinitely.

Real-Time Strategy = a subgenre of strategy games, where player actions are taken in real-time. Real-time strategy games often emphasize efficient resource management (building new units, factories) over actual strategy.

Role-playing Game = a game in which players assume the roles of characters to collaboratively create narratives. The Fantasy Game / Dungeons & Dragons were the first role-playing games to be published. Most computer role-playing games solely concentrate on the combat side of role-playing games. They borrow their game mechanics from actual table-top role-playing games. A computer game should be classified as a role-playing if character development is an essential part of it and the character has several statistics e.g. strength, hit points, skill points. The character development is usually achieved via experience points.

RPG = Role-Playing Game

RTS = Real-Time Strategy

Shareware = is software, which is distributed for free, but you have to buy it after a trial period, usually 30 days. Many shareware programs and games are limited versions, lacking some content and features available in the purchased version

Simulation = imitation of some real device, situation or process e.g. flight simulation simulates flying with some actual flying device e.g. an airplane or hot-air balloon.

Almost all games contain some level of simulation.

Appendix A: Summary Table of Very Important Game People

Simulator = a program, whose main purpose is simulation

Software Toy = a term coined by Will Wright to classify his own creations. A software toy is basically a software version of toy, a computer program which allows the user to experiment and play with some things e.g. managing a city or controlling the life of a family. Software toys lack clear goals, thus they are not classified as games, nor puzzles or competitions.

Shooter = an action, where the main emphasis is on eliminating enemies, usually by shooting them with some sort of projectile weapon.

Shoot'em'up = Shooter game

SNES = Super Nintendo Entertainment System, a home video game console

Spectrum = Sinclair ZX Spectrum, a popular 8-bit home computer of the 1980s invented by Sir Clive Sinclair.

Split screen = A technique used in many videos, where the screen is divided into two or more areas, usually to support multi-player gaming so that each player has a portion on screen, where he sees the game view as if in single-player game mode.

Sports Games = emulate or simulate actual real-life sports or have game-play similar to athletic events.

Text Adventure = Non-graphical adventure game using only textual input and output.

Turn-Based = A game, where each player inputs his commands or moves in turn, while others wait. Most traditional table-top games like chess or monopoly are turn-based.

War game = a game, set within a war theme. Most war games are strategy games, where the goal is to defeat the opponent's troops in battle

XP = Experience Points

References

- Rouse, Richard III: Game Design – Theory & Practice (pages 546-561)
Wordware Publishing 2001, ISBN:1-55622-735-3
- Wikipedia
Accessed on 19th March 2006, available on:
<http://www.wikipedia.org>
- Petri Kuittinen: Introduction to Roguelike Games
Accessed on 19th March 2006, available on:
<http://users.tkk.fi/~eye/roguelike/intro.html>

Appendix A: Summary Table of Very Important Game People

Appendix A: Summary Table of Very Important Game People

Name	Year of Birth	Year of Death	Country of Origin	University Education	Inventor	Entrepreneur	Designer	Programmer	Producer	Graphics	Audio
Arneson David	1947	-	USA	X		X	X	X			
Baer Ralph H.	1922	-	USA	X	X		X	X			
Bunten Daniel	1949	1998	USA	X			X	X			
Bushnell Nolan	1943	-	USA	X	X	X	X	X			
Carmack John	1970	-	USA	-		X	X	X			
Crawford Chris	1950	-	USA	X			X	X			
Garriot Richard	1961	-	USA	X		X	X	X	X		
Gygax Gary	1938	-	USA	?			X				
Hawkins Trip	1953	-	USA	X		X	X	X	X		
Hubbard Rob	1956	-	UK	?							X
Iwatani Toru	1955	-	Japan	-			X		X		
Jarvis Eugene	1955	-	USA	X			X	X	X		
Kutaragi Ken	1950	-	Japan	X	X	X					
Logg Ed	?	-	USA	?			X	X			
Meier Sid	1954	-	USA	?			X	X			
Minter Jeff	1962	-	UK	-		X	X	X		X	X
Miyamoto Shigeru	1952	-	Japan	X			X		X	X	
Molyneux Peter	1960	-	UK	?		X	X	X	X		
Naka Yuji	1965	-	Japan	-			X	X	X	X	X
Pajitnov Alexey	1956	-	Russia	X			X	X			
Romero John	1967	-	USA	-		X	X	X	X		
Sakaguchi	1962	-	Japan	-			X		X		

Appendix A: Summary Table of Very Important Game People

Name	Year of Birth	Year of Death	Country of Origin	University Education	Inventor	Entrepreneur	Designer	Programmer	Producer	Graphics	Audio
Hironobu											
Stamper Chris	1959	-	UK	X	X	X	X	X			
Stamper Tim	1962	-	UK	-		X	X			X	
Suzuki Yu	1958	-	Japan	X			X	X	X		
Tajiri Satoshi	1965	-	Japan	-		X	X		X		
Williams Ken	1954	-	USA	-		X	X	X	X		
Williams Roberta	1953	-	USA	-			X			X	
Wright Will	1960	-	USA	X			X	X			
Yokoi Gunpei	1941	1997	Japan	X	X				X		

Appendix B: Summary Table of Home Video Consoles

Appendix B: Summary Table of Home Video Consoles

Home Video Console	First Available	CPU	RAM	Media	Initial Price	Millions of Units Sold	Best Selling Game	Best Selling Game Units (millions)
Magnavox Odyssey	1972	analog components	none	logic carts	\$199	0.35	?	
Atari PONG	1975	Atari PONG chip	none	none	?	0.15	inbuilt games	
Coleco Telstar	1976	GI AY-3-8500	none	none	\$50	>1	inbuilt games	
Fairchild Channel F	1976	F8 @ 1.79 MHz	64 bytes+16 kB VRAM	ROM	\$169.95	?	?	
Atari VCS/2600	1977	MOS 6507 @ 1.19 MHz	128 bytes	4 kB ROM	\$199	26	Combat	20
Magnavox Odyssey 2	1978	Intel 8048 @ 1.79 MHz	64+128 bytes	2-8 kB ROM	\$99	1+	K. C. Munchkin!	?
Mattel Intellivision	1979	GI CP1610 @ 894 kHz	1352 bytes	ROM	\$299	3	Major League Baseball	1
Atari 5200	1982	MOS 6502 @1.79 MHz	16 kB	ROM	\$330	?	?	
Coleco Colecovision	1982	Z80A @ 3.58 MHz	8 kB+16 kB VRAM	8-32 kB ROM	\$175	6	?	
Vectrex	1982	Motorola 68A09 @ 1.6 MHz	1 kB	ROM	\$199	?	Minestorm	?
Nintendo Entertainment System (NES) / Famicom	1983	6502 @ 1.79 MHz	2 kb + 2 kB VRAM	48 kB ROM	\$159	62	Super Mario Bros	40
Atari 7800	1986	MOS 6502 @1.79 MHz	4 kB	48 kB ROM	?	?	?	

Appendix B: Summary Table of Home Video Consoles

Home Video Console	First Available	CPU	RAM	Media	Initial Price	Millions of Units Sold	Best Selling Game	Best Selling Game Units (millions)
Sega Master System	1986	Z80A @ 3.58 MHz	8 + 16 kB	8-256 kB ROM	\$200	13	?	
Sega Mega Drive/Genesis	1988	Motorola 68000@7.6 MHz	8+ 64+ 64 kB	ROM/CDROM (CD version in 1992)	\$189.99	35	Sonic the Hedgehog 2	?
NEC TurboGrafx 16 /PC Engine	1987	Hu6280A @ 3.58 MHz	8 + 64 kB	CDROM + HuCard (ROM)	\$249.99	7	?	
SNK Neo-Geo	1990	68000@12 MHz, Z80@4 MHz	64+68+2 kB	ROM	\$649.99	1	?	
Phillips CD-i	1991	68070 @ 15.5 MHz	1.5 MB	CDROM	\$400	1	?	
Super Nintendo Entertainment System (SNES) / Super Famicom	1991	65816 @ 3.58 MHz	128 kB + 64 kB VRAM	0.5-6 MB	\$200	49	Super Mario World	17
3D0	1993	ARM60 @ 12.5 MHz	2 + 1 MB	CDROM	\$700	1.5	?	
Atari Jaguar	1993	68000@13 MHz, 2 custom@ 26 MHz	2 MB	6 MB ROM / CD (Jaguar CD in 1995)	\$249.99	0.25	Alien Vs. Predator	?
Commodore Amiga CD32	1993	68020 @ 14.3 MHz	2 MB	CDROM	\$450	?	?	
Sega Saturn	1994	2 Hitachi Super H2 @ 28.6 MHz	2 MB + 1.5 MB VRAM + 1 MB	CDROM	\$349	10	Virtua Fighter 2	?

Appendix B: Summary Table of Home Video Consoles

Home Video Console	First Available	CPU	RAM	Media	Initial Price	Millions of Units Sold	Best Selling Game	Best Selling Game Units (millions)
Sony PlayStation	1994	MIPS R3000A @ 33.9 MHz	2 MB + 1 MB VRAM + 0.5 MB	CDROM	\$299	103	Final Fantasy VII	9
Nintendo 64	1996	MIPS R4300i @ 93.75 MHz + custom 64-bit @ 62.5 MHz	4 MB	6-64 MB ROM	\$299	35	Super Mario 64	11
Sega Dreamcast	1998	SH-4 @ 206 MHz	16 MB + 8 MB VRAM + 2 MB	1.2 GB GDROM	\$199.99	10	Sonic Adventure	?
Sony PlayStation 2	2000	Emotion Engine @ 299 MHz	32 MB	4.7/8.5 GB DVD	\$299	100	Grand Theft Auto: Vice City	6.50
Microsoft Xbox	2001	Pentium 3 @ 733 MHz	64 MB	4.7/8.5 GB DVD	\$299	23	Halo 2	4.3
Nintendo Gamecube	2001	PowerPC @ 485 MHz	48 MB	1.5 GB miniDVD	\$231	21	Super Smash Bros. Melee	2.70
Microsoft Xbox 360	2005	3x PowerPC cores @ 3.2 GHz	512 MB	DVD	\$299.99	2.5	?	

Notes: The sales data is till the end of year 2005. 8+16 kB RAM means 8 kB main memory and 16 kB video memory. All RAM and storage units are in bytes, not bits (like some manufacturers tend to express them in order to make their memory or storage sized appear 8 times larger). So kB = kilobyte, MB = Megabyte and GB = Gigabyte. Some of the game sales numbers are international, some are US only.

Sources: <http://allgame.com>, <http://www.wikipedia.org>, and several best-selling game lists, magazines, advertisements and

Winnie Forster: The Encyclopedia of Consoles, Handhelds & Home Computers 1972-2005

Leonard Herman: Phoenix – The Fall & Rise of Videogames (3rd edition)

Appendix C: Summary Table of Handheld Game Machines

Appendix C: Summary Table of Handheld Game Machines

Handheld Game Machine	First Available	CPU	RAM	Media	Initial Price	Millions of Units Sold	Best Selling Game	Best Selling Game Units (millions)
Waco Electronic Tic-Tac-Toe	1972	?	?	none	?	?	Inbuilt game	
Milton Bradley Microvision	1979	Intel 8081/TI TMS1100 @ 100 KHz	16 bytes	2 kB ROM	?	?	?	
Nintendo Game & Watch	1980	custom logic	?	none	\$60 (¥5800)	?	1 inbuilt game	
Atari Lynx	1989	6502 @ 3.6 MHz	64 kB	128- 512 kB	\$159.99	?	Road Blasters	?
Nintendo Game Boy	1989	Sharp Z80 @ 4.2 MHz	8 kB + 8 kB VRAM	32 kB - 1 MB	\$109	118.7	Tetris	33
NEC TurboExpress	1990	two Hu6820 @ 3.58 MHz	8+ 64 kB	HuCard (ROM)	\$249.99	?	?	
Sega Game Gear	1990	Z80 @ 3.58 MHz	8 +16 kB	ROM	\$159.99	3	?	
Nintendo Virtual Boy	1995	NEC V810 @20 MHz	128 kB + 64 kB VRAM	ROM	\$179.95	1	?	
Sega Genesis Nomad	1995	Motorola 68000@7.6 MHz	8+ 64+ 64 kB	ROM	\$179.99	?	Sonic the Hedgehog 2	
Nintendo Game Boy Color	1998	Sharp Z80 @ 4.2 MHz or 8 MHz	8 kB + 16 kB VRAM	32 kB - 8 MB	\$79.99	118.7	Pokemon Yellow	5.1
SNK Neo Geo Pocket	1998	TLCS-900 H @6.144 MHz and Z80 @ 3 MHz	16 kB	ROM	\$68 (¥7800)	1.2	?	
Bandai WonderSwan	1999	16-bit @ 3.072 MHz	64 kB	ROM	?	3.5	?	

Appendix C: Summary Table of Handheld Game Machines

Handheld Game Machine	First Available	CPU	RAM	Media	Initial Price	Millions of Units Sold	Best Selling Game	Best Selling Game Units (millions)
SNK Neo Geo Pocket Color	1999	TLCS-900H @6.144 MHz and Z80 @ 3 MHz	12 + 4 kB	ROM	\$69.95	1.2	?	
Bandai WonderSwan Color	2000	16-bit @ 3.072 MHz	64 kB	ROM	\$65 (¥6800)	3.5	?	
GamePark 32 (GP 32)	2001	ARM920T @ 133 MHz	8 MB	8-128 MB smartmedia Flash ROM	€ 199	?	?	
Nintendo Game Boy Advance	2001	ARM7TDMI @ 16.8 MHz and Z80 @ 8.4 MHz	32 kB + 96 kB VRAM +256 kB	ROM	\$100	66.8	Pokémon Ruby, Sapphire and Emerald	2
Nokia N-Gage	2003	ARM @ 104 MHz	4 MB	mmc Flash ROM	\$299.99	1.3	?	
Nintendo DS	2004	ARM946E-S @ 67 MHz and ARM7TDMI @ 33 MHz	4 MB	ROM	\$149.99	14	Nintendogs	5
Sony PlayStation Portable (PSP)	2004	MIPS R4000 @ 222 MHz	32 MB	1.8 GB UMD disc	\$249.99	10	Grand Theft Auto: Liberty City Stories	?
Tiger Gizmondo	2005	AMR9 @ 400 MHz	64 MB	64 MB Flash	\$229	?	?	

Notes: The sales data is till the end of year 2005. Game Boy and Game Boy Color unit sales are combined. Similarly Bandai WonderSwan and WonderSwan Color and SNK Neo Geo Pocket and Color-version sales are combined. That is why the numbers are identical.

Sources: <http://allgame.com>, http://en.wikipedia.org/wiki/Comparison_of_Handheld_gaming_consoles and:

Winnie Forster: The Encyclopedia of Consoles, Handhelds & Home Computers 1972-2005

Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition)

Appendix C: Summary Table of Handheld Game Machines

Appendix D: Summary Table of Home Computers

Computer	First Available	CPU	RAM	Media	Initial Price	Millions of Units Sold
Digital PDP-1	1960	18-bit @ 200 kHz	4 kilo words (max. 64 kilo words)	hard disk, tape	\$100000	?
MITS Altair 8080	1975	Intel 8080A @ 2 MHz	16 kB	paper tape, cassette, 5¼" floppy disk	\$395	few thousands
Apple II	1977	6502 @ 1 MHz	4 - 48 kB RAM	5¼" floppy disk	\$1298	4.9
Commodore PET	1977	6502 @ 1 MHz	4-32 kB	5¼" floppy disk, tape	\$495	?
TRS-80	1977	Z80 @1.77 MHz	4-16 kB	5¼" floppy disk, tape	\$599	1
Atari 400/800/XL/XE	1979	6502 @ 1.79 MHz	8-128 kB	5¼" floppy disk, tape, ROM	\$499	2
Texas Instruments TI-99/4A	1979	TI TMS9900 @ 3.3 MHz	16 kB	5¼" floppy disk	\$1150	2.8
Commodore VIC-20	1980	6502 @ 1 MHz	5 kB	5¼" floppy disk, tape	\$299	2.5
Sinclair ZX80	1980	Z80 @ 3.25 MHz	1 kB	tape	\$140 (£99.95)	0.05
TRS-80 Color Computer	1980	MC6809E @ 0.98 MHz	32 kB	5¼" floppy disk, tape	\$399	1.5
BBC Micro / Acorn BBC	1981	6502A @2 MHz	32 kB	tape	\$335 (£235)	1

Appendix C: Summary Table of Handheld Game Machines

Computer	First Available	CPU	RAM	Media	Initial Price	Millions of Units Sold
IBM PC + clones	1981	Intel 8088 @ 4.77 MHz	64 kB	5¼" floppy disk, later CDROM	\$2880	1282
Sinclair ZX81	1981	Z80 @ 3.5 MHz	1 kB	tape	\$100	1.5
Commodore 64	1982	6510 @ 1 MHz	64 kB	5¼" floppy disk, tape, ROM	\$595	22
Sinclair ZX Spectrum	1982	Z80 @ 3.5 MHz	16-48 kB	tape, ROM, microdrive	282 €	5
MSX	1983	Z80A @ 3.58 MHz	8-64 kB + 16 kB VRAM	tape, ROM, later 3.5" floppy	\$500	?
Amstrad CPC	1984	Z80A @ 3.3 MHz	64 kB	tape, ROM, later 3.5" floppy	\$330 (£230)	2.5
Apple Macintosh	1984	68000 @ 8 MHz	128-512 kB	3.5" floppy, later CDROM	\$2495	51
Atari ST	1985	68000 @ 8 MHz	0.5-2 MB	3.5" floppy	\$799	6
Commodore Amiga	1985	68000 @ 7.2 MHz	0.5-2 MB	3.5" floppy	\$1495	5
Acorn Archimedes	1987	ARM @ 12 MHz	0.5-4 MB	720 kB 3.5" floppy	\$1700 (£1200)	0.5
NeXT	1988	68030 @ 25 MHz	8 MB	3.5" floppy disk, hard disk	\$10000	0.062
IBM PC Pentium 4	2001	Pentium 4 @1.8-3.8 GHz	256 MB - 2 GB	DVD ROM, flash	\$1000	?

Appendix C: Summary Table of Handheld Game Machines

Computer	First Available	CPU	RAM	Media	Initial Price	Millions of Units Sold
Other						3.3

Notes: Digital PDP-1 is not a home computer, but is included here, because its importance in the history of games.

MIT's Altair was sold as a do-it-yourself kit.

IBM PC + clones contain the total combined sales of all PC-compatible computers till 2004. Similarly Apple Macintosh contains all Mac compatible computers including new iMacs with PowerPC processor. Other is computers not listed here.

8-bit microprocessors: Zilog Z80-series, MOS 6502-series 16-bit microprocessors: Intel 8086/8088 and 80286, MC6809E

32-bit microprocessors: Motorola 68000 series, ARM, Intel 80386, 80486, PowerPC and Pentium

Sources: Jeremy Reimer: Personal Computer Market Share: 1975-2004 and Total share: 30 years of personal computer market share figures

http://www.pegasus3d.com/total_share.html , <http://arstechnica.com/articles/culture/total-share.ars>

Winnie Forster: The Encyclopedia of Consoles, Handhelds & Home Computers 1972-2005

Rusel Demaria & Johnny I Wilson: High Score - the Illustrated History of Electronic Games (2nd Edition)

Leonard Herman: Phoenix – The Fall & Rise of Videogames (3rd edition)